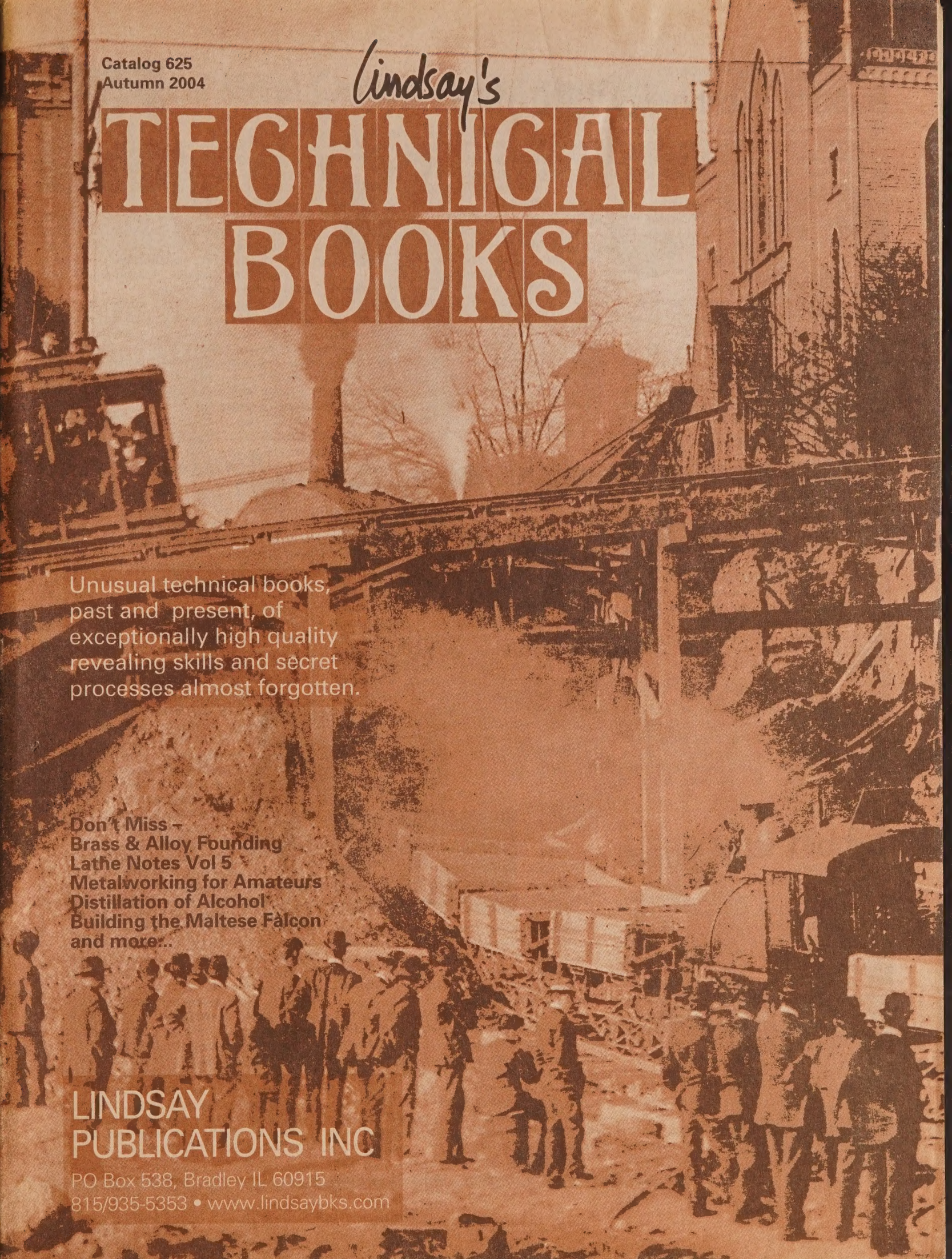

Catalog 625
Autumn 2004

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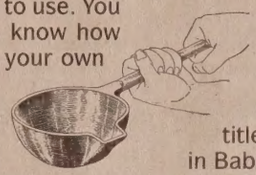
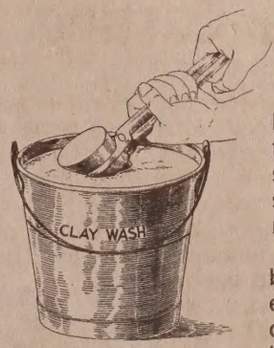
AMERICAN MACHINIST MEMORIES

Babbitt Technology 1910-1916

reprinted by Lindsay Publications

Babbitt. Magical stuff! Low tech. Easy to work. Incredible bang for the buck. Certainly worth knowing about, but also worth knowing how to use. You need to know how to pour your own bearings should you want to restore or build a replica of an old machine.





Here you get articles gleaned from issues of American Machinist Magazine during the era when Babbitt metal was routinely discussed. You get a little bit of everything: history, industrial secrets, and practical how-to.

Thevery first article from May 1910 is entitled "Methods Used in Babbitting Bearings". And you'll find most of the articles offered here are a variation on this theme. Other topics include anchor holes for bearings, arbors for long bearings, compressing babbitt, quick method of rebabbitting pulleys, babbitt in the ends of steady rest jaws, renewing lathe spindle bearings, using rosin paper while babbitting, how to get even shrinkage when babbitting, machining split babbitt bushings, mold for half bearings, foundry finished bearing surfaces, babbitting the nut for a multi-thread splined shaft, designing a babbitt mold, and more.

Major articles include making Babbitt and Babbitted Bearings, Babbitting equipment used in the Beech Grove shops of the Big Four railroad, a great course in babbitting entitled "Around Small-Shop Babbitt Fires", and more.

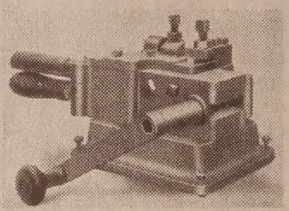
The majority of these articles are illustrated and reveal how babbitt was routinely used in manufacturing and machinery repair. If you have any imagination or curiosity at all, you're sure to find something of use in this collection.

Good stuff! Get a copy. 5-1/2 x 8-1/2 softcover 72 pages

No. 22970 $8.95

MACHINERY'S INDUSTRIAL SECRETS

Babbitt Bearing Techniques

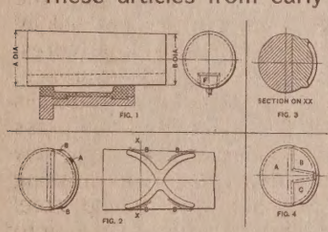


reprinted by Lindsay Publications

A hundred years ago, Babbitt was king. It was inexpensive and easy to work.

You can take a cast iron shell for a pillow block. You place the drive shaft through the shell and center it with a simple jig. You melt Babbitt with a torch (propane will do) and pour it into the space between the shaft and the shell. In a couple of minutes the metal freezes. You remove the shaft and check the result.

These articles from early issues of Machinery Magazine reveal discussions among WWI era machinists about their techniques, secrets, and discoveries. Topics include: Making Babbitted Bearings in Halves, numerous Babbitting mandrels, centering jigs, special jigs for special jobs, Babbitting and Planing Cross Head Gibs, a variety of Babbitt Bearing Molds, Use of Soft Metals in Machinery Construction, Anchoring White Metal, Lining Bearings with Babbitt Metal, Babbitted Machinery Construction, Alignment Babbitting, Lining Cast-Iron Bearings with Babbitt Metal, Standard Babbitt Specifications, Babbitting Fixture for Small Bearings, Oil Channels in Babbitt Bearings, and more.



Interesting booklet loaded with old-timer's secrets. Many drawings. Great ideas. Get a copy. 5-1/2 x 8-1/2 booklet 48 pages

No. 22440 $5.95

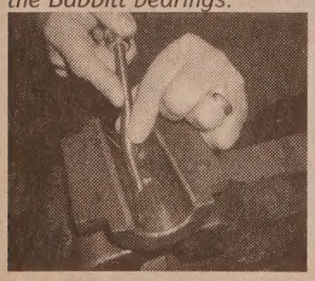
HOW I POUR

Babbitt Bearings

by Vince Gingery

Vince tells us about his Babbitt booklet...

"Many of us get a great deal of satisfaction from restoring old tools, machinery and automobiles that are destined for the scrap yard. We find that there is a lot of old, heavily-built machinery built to last still available at scrap prices. Often all that is required to put one of these machines back in working order is cleaning and painting individual parts and re-pouring the Babbitt bearings.



"This little booklet contains the basic information you need to melt and pour, in other words, restore Babbitt bearings. Topics include: bearing metal requirements, Babbitt availability, safety, cleaning the shell, anchoring the Babbitt, tinning, set up, melting, preheating, pouring and finishing the bearing etc.

In addition, you should consider making your own bearings from scratch. You will be amazed at how simple it is....."

What you get here is a small, jam-packed booklet that lets you look over Vince's shoulder as he restores a saw-mill arbor to like-new condition. He's certainly not inventing anything new, rather he's showing you how you can do the job today.

Get a copy. Usual Gingery quality. Heavily illustrated. Loaded with practical how-to. Good stuff as usual. 5-1/2 x 8-1/2 booklet 44 pages

No. 1524 $7.95

from a March 1917 letter written by "FBJ"

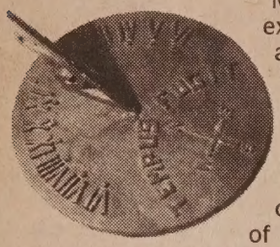
"...It is common practice to babbitt the main bearings of marine engines, and this material gives entire satisfaction, notwithstanding the enormous weight of the crankshaft and other parts, connecting-rods, crossheads, pistons and piston rods, to say nothing of the extra weight brought to bear by the steam pressure. Yet a marine engine must run continuously from the time the ship leaves the port until she docks again, for it is exceedingly dangerous to stop a ship for repairs when there is a heavy sea running. Marine-engine main bearings that are babbitted often run for many years without attention, aside from a little scraping and adjustment of liners, and when they are worn to a point that demands renewal, they are replaced at a comparatively trifling cost.

In the past, many machine-tool builders employed babbitted bearings in lathes, screw machines, small milling machines, etc., with very satisfactory results. In such cases, the babbitt is poured over a mandrel somewhat smaller than the desired finished size and later is thoroughly peened. The bearings are then bored and line-reamed. This method gives excellent results, as any mechanic of the older school can testify. Yet the purchaser of machinery at the present day looks askance at a good, honest babbitted bearing, thinking that it is a sure sign of cheap construction...

The babbitted bearing has earned for itself an established place in the mechanical world, and engineers, designers and those who contemplate the purchase of machinery should investigate its merits before hastily condemning it..."

Ornamental Metal Casting

by Robert Whitmoyer



Melting metal and pouring castings is an extremely valuable skill when designing and building machinery. But casting metal can be a whole lot more than that!

Whitmoyer will show you how to take Gingery's charcoal furnace and push it into new areas. You'll learn how to build and operate a charcoal furnace capable of melting 2 1/2 quarts of aluminum. You'll learn how to make a beautifully simple, yet easy-to-handle crucible, flasks, a molding table, and all the other components you'll need.

You'll learn how to mold and cast plaques, a sundial, solid figurines, penny bank replicas, and a large fountain that would cost you a fortune to buy.

One of the strongest points of this book is the info on lost wax casting techniques. You'll learn simple techniques of using plaster-of-Paris to make incredibly detailed castings. Wait until you get a good look at the chess set he cast! Beautiful work!

If you love casting metal, you must get a copy of this. It will round out your abilities and will enable you to cast objects that might be a whole lot easier to sell than something like indexing heads. In other words, the skills here could make you some money on the side. Excellent book! Loaded with photos and drawings. Great how-to! Get a copy!

5 1/2 x 8 1/2 softcover 92 pages

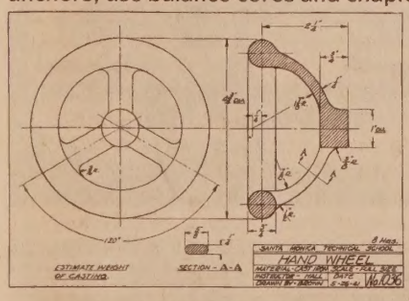
No. 4430 $9.95

Practical Wood Patternmaking

by J Robert Hall
reprinted by
Lindsay Publications

Fig. 137.—Operation 7. Removing pattern.

You get 89 lessons that can't all be listed here. Each lesson, or chapter, starts with the words "How to". You'll discover how to sharpen a gouge, measure lumber, use runners and gates, lay out and cut square holes, use leather fillets, use templates, lay out and cut a true round or ball, make cores, make and use face plates, use wing core and wing prints, use babbitt anchors, use balance cores and chaplets in core work, make a medium or large spur-gear pattern, use a cupola and crucible in metal melting, and on and on.



You get a large format book with 89 lessons, wall-to-wall illustrations, including dimensioned drawings of patterns of useful castings such as bearing caps, a hand lever for a machine, a crank, a foot pedal. a hand wheel, a pulley, and dozens more.

You'll visit three different foundries to watch molders ram up molds, to see their inventory of stock patterns, and more.

Hall taught in Santa Monica in 1943, and you'll find his book more action than words. Excellent how-to that will help you make better castings. Get one! 8 1/2 x 11 softcover 188 pages

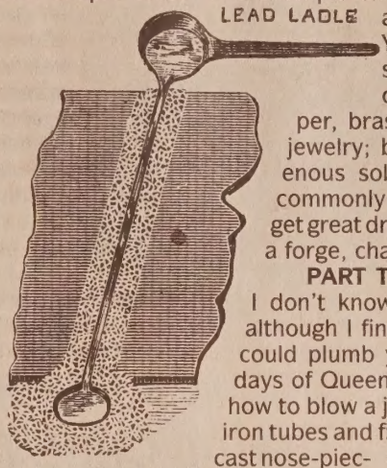
No. 21095 $14.95

Metalworking for Amateurs

edited by F Chilton-Young
reprinted by Lindsay Publications

From 1893 comes this interesting little British book which is essentially a compilation of three smaller collections of magazine articles from such periodicals as "Everyman his Own Mechanic" and "Amateur Work".

Part One covers brazing and soldering. This is how it was done with simple tools. One example shows how a broken brass key is aligned and repaired by brazing. You get six small chapters on soft soldering; soldering tin, zinc, and composite metal; soldering copper, brass, bronze, silver, etc; soldering jewelry; brazing heavy joints; and autogenous soldering or welding (the welding commonly performed by blacksmiths). You get great drawings of different torches, blasts, a forge, charts, formulas and more.



PART TWO covers practical gas-fitting. I don't know what practical value this has, although I find it interesting to learn how you could plumb your house for gas lights in the days of Queen Victoria. Three sections discuss how to blow a joint, gas brackets and pendants; iron tubes and fittings, chandeliers, gas fires; and cast nose-pieces, screwing and cutting iron tubes, making pendants, etc. In this age of electricity, details on how to secure a gas-fired chandelier to the ceiling is really fascinating (well... for those of us with some curiosity, anyway...).

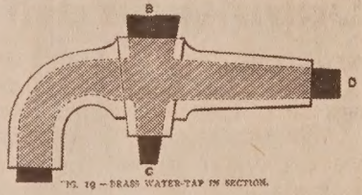


FIG. 19.—BRASS WATER-TAP IN SECTION.

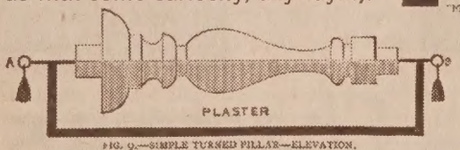
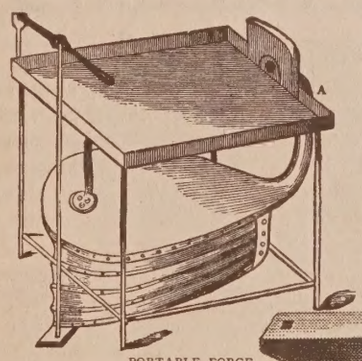


FIG. 9.—SIMPLE TURNED PILLAR—ELEVATION.

PART THREE is the part I like the best: brass casting at home. You get discussions on how patterns and molds are made, the crucible, melting metal and making castings; and turned work and cores. You don't get details on a furnace, but you do get interesting details on difficulty in pouring small brass castings, guides for sliding-bar, how the pattern was made, wax dressing for core, material for mould, steel bar as core, pouring plaster into mold, extraction of mold, smoking mould and tying it together, the crucible, melting the metal, fuel and brass for casting, heating the mould, and much more. Like Dave Gingery has said, knowing how the big industrial boys pour brass is important so that you can scale the technology down to your own needs.



PORTABLE FORGE.

FIG. 12.—PAIL-FURNACE FOR HEATING SOLDERING-IRON.

But this is how amateurs in England were pouring small brass castings in their home shops over a hundred years ago.

Interesting unusual stuff. It always fascinates me to "watch" craftsman from decades ago get amazing results with the simplest of techniques. That's what this is about. I like it. I think you will, too. Get a copy.

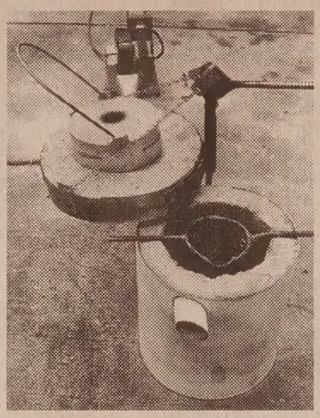
5-1/2 x 8-1/2 softcover 118 pages

Cat. no. 23152 $7.95

Chastain's Metal Casting

A Sand Casting Manual for the Small Foundry — Part 1

by Steve Chastain



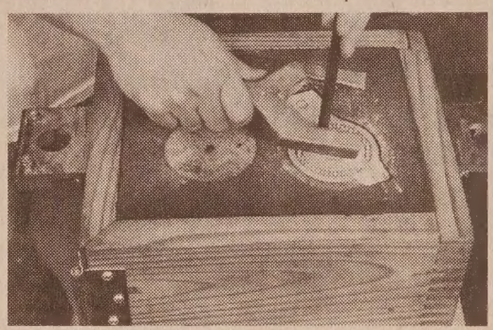
Here, in the first half of what I think should be called the Home Foundryman's Reference, you'll find not only useful plans and projects but important details about flasks, cores, sand, furnaces, binders, coatings, thermocouples that apply to our home foundry operations.

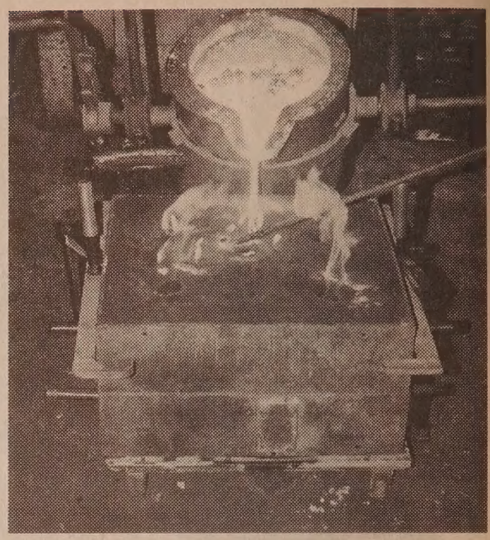
You get more than just a "do-this do-that" text. Steve has extracted essential detail from industrial handbooks, tempered it by his own experiences, and delivers it in a no nonsense style that we can use. This is info you can adapt to your own operation.

Chapters include how to make a matchplate vibrator, wooden flasks, flask hardware and an aluminum flask. You get construction details on the basic "Gingery" charcoal furnace, and construction details on a 2450° crucible gas furnace with cam operated lid. You'll get details on forming sheet metal into the transition pieces that you'll probably need for blowers. You get useful details on thermcouples and their use in making a homemade pyrometer.

You get details on the types of sand, bonding agents, their effect on molds and coremaking, Petrobond and more. Steve covers coremaking: cement bonded cores, bolted and leaded cores, core setting jigs and more. You'll even see cores used to cast the old Packard V-12 engines.

You get simple formulas you can punch into a pocket calculator to help in design of ladles, avoid problems with core buoyancy, calculate the weight of crucible full of molten metal and more. He talks about problems, for instance, encountered with ramming up molds with Petrobond and how to solve them.



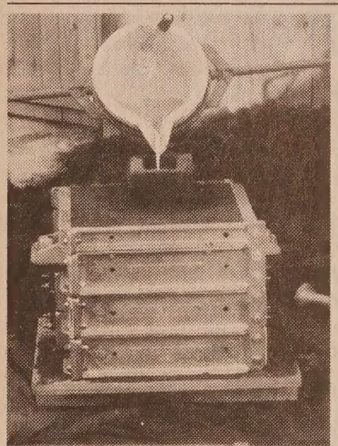


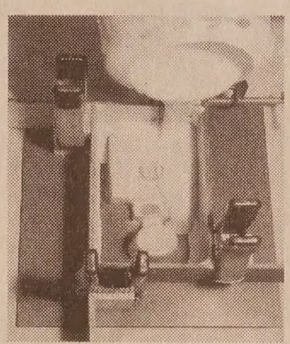
This is wall-to-wall information. If you're looking for a basic book on foundry, I still think "Unka Dave" Gingery's charcoal foundry is still the best place to start. Once you've poured some castings, and get "hooked", you'll want to do bigger and better things – the things Steve is doing, like making repair parts for antique engines. This is a book you'll want to read and refer to.

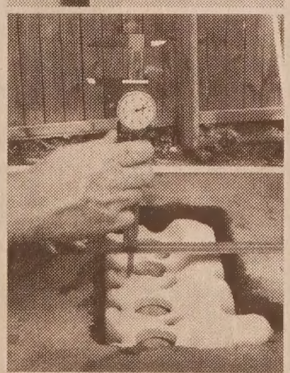
Loads of practical ideas and information from someone who knows both the theory and the practical how-to. Get a copy! 5-1/2 x 8-1/2 softcover more than 200 pages

No. 1560 $19.95

Chastain's Metal Casting PART 2







by Steve Chastain

Here's the last half of Steve's comprehensive foundry manual, and it's even better than the first volume.

Chapters include solidification of metals: the differences between pure metals and alloys. Then aluminum alloys are discussed: effect of alloying, grain refiners, heat treatment, hardening, melt reactions, practice and more. Chapter 3 covers copper alloys: bronze, brass, aluminum bronze, and more.

Chapter 4 launches into iron: the effects of carbon and silicon, ductile iron, alkali fluxes, alloying elements, etc.

The next three chapters cover gating, directional solidification, heat loss from risers, making insulated riser sleeves, pattern allowances for shrinkage, match plates, making rubber molds, making a vacuum chamber (for rubber molds), making a match plate, and more.

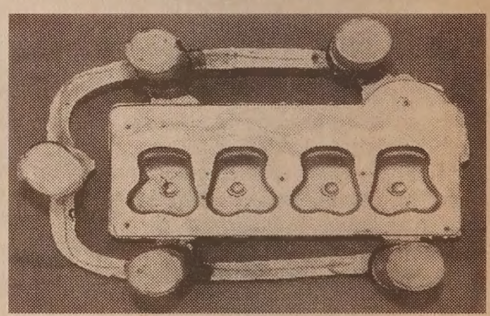
Chapter 8 provides useful foundry projects: a sturdy flask lock, a knee operated air valve, variations of the aluminum flask, making piston castings, cylinder head castings, and casting piston rings. You'll see old photos of Ford flathead v-8's being produced.

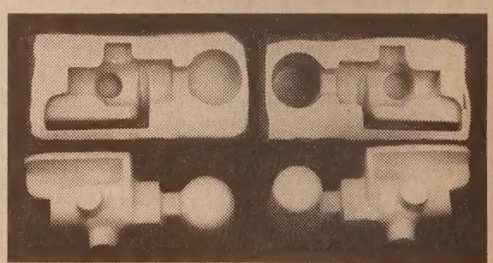
And you get the usual biblography, appendices, list of suppliers and all that.

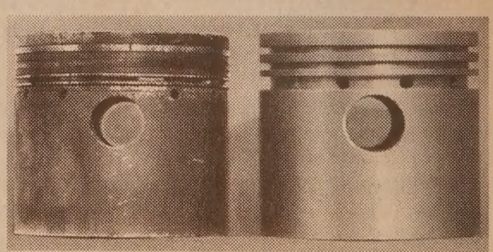
You don't have to know a lot to pour useful castings, and have fun doing it. Once you try it, though, you run the risk of becoming addicted to melting metal. And once that happens you'll want to get beyond the basics and become a "gourmet" sand crab cooking up really impressive castings. Check out the photos of Steve's pistons and engine head, and you'll see what I mean.

More good stuff from the head sand-crab. Same quality as his other books. Consider it carefully. 5-1/2 x 8-1/2 softcover 208 pages

No. 1564 $19.95



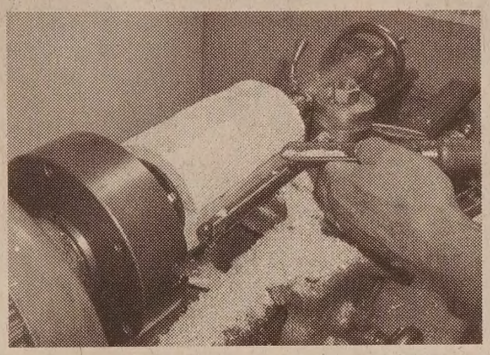




Making Crucibles

by Vince Gingery

Melting metal requires the application of heat to a container containing the metal. The container we usually use is a crucible. You can buy high quality crucibles, or you can make them. Even if you buy the best commercial grades, they eventually wear out and sometimes break. If you build the necessary simple

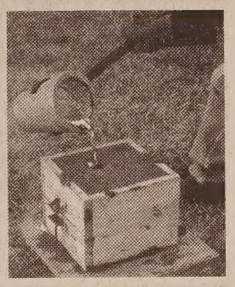


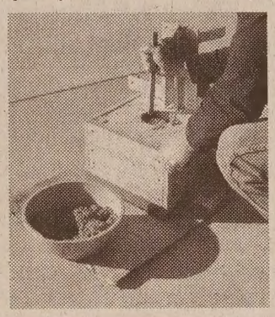
equipment to make your own crucibles, you'll have an endless supply of quality, low-cost units of exactly the size you need.

Making a crucible is merely a process of shaping clay into the proper shape and firing it. In other words, this is about making pottery.

You'll learn about how crucibles were made a century ago, making a PVC mold, clay composition, ramming up, firing the crucible, making crucible tongs, making a concrete mold, making a mold press, safety rules and precautions, and more.

The only fancy piece of equipment you'll need is a lathe to create the wooden mold. Vince uses his metal lathe, of course, but a wood lathe will do the job.





And like all other Gingery books, this is loaded with a disgusting number of photographs and drawings, with plenty of detailed how-to "thrown in" just for kicks. In other words, this is classic Gingery practical "how-to-do-it."

If you do nothing more than dream about pouring metal someday, I think you're a fool not to have a copy of this. It's good. Get one. 5-1/2 x 8-1/2 booklet 64 pages

No. 1551 $9.95

An Oil-Fired Tilting Furnace

by Steve Chastain

Dave Gingery's charcoal foundry is about all I need for the few castings that I need to pour. It's quick and easy to build, but it's not as convenient as it could be, and I'm limited to about a quart of molten aluminum. If you want to cast an aluminum boat, it won't do.

Here, Steve Chastain will show you how to build a furnace capable of melting fifty pounds of aluminum per melt which comes to about a hundred pounds per hour. "The furnace is to be built from common materials such as sand, clay, pipe, rectangular tubing and an old 30-gallon drum. The furnace shown in this plan set may be built for $200 or less...". And you fire it with propane or used motor oil.

"The furnace tilts around the spout and not the center of gravity so that the stream of molten aluminum remains in a fixed location and does not change with the furnace angle."

You get not only the details on building and firing this beaut, but Steve will give you the formulas and basic theory you need to make design changes to meet your own needs.

You'll learn how to build a laminar flow burner nozzle, and how to proportion the design so that the furnace tilts safely and easily. And you'll be shown how to build the blower and a manometer. Then Steve will show how a furnace is built and used.

Tools? Well, you'll need a lathe to fabricate the venturi and a few small parts. You'll need a welder, and I think a power hacksaw or bandsaw sure would save the arm muscles. In other words, you ain't gonna build this on the kitchen table. But you ain't gonna need a giant machine shop either.

This book and the furnace it describes is worth having. Not only does Steve show you how to build a working furnace useful for pouring one-off large castings, or many small duplicate castings that can be sold, but it also shows you some of the basic furnace/combustion theory that goes into the design of a furnace. And whether or not you build this furnace exactly as is, the background knowledge can greatly extend your understanding of foundry practice.

Good stuff. Well illustrated. I wish I had time to build one. I'd cast a thousand 7" likenesses of myself, and demand that people remove that plastic Jesus from the dashboard of their SUV and replace it with an aluminum Lindsay. Can you imagine the wrecks and the ensuing lawsuits that would cause???

Get a copy. It's worth having. Excellent quality. 5-1/2 x 8-1/2 softcover 192 pages

No. 1529 $19.95

BUILDING AN ATMOSPHERIC

Forge & Heat Treat Oven

by Bill Goodman & Bob Holmes
published by Gingery Publishing

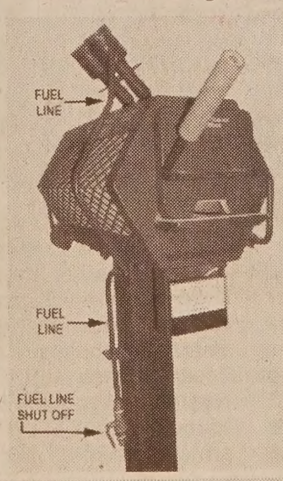
Dave Gingery writes in the foreward–

"When I first saw the Goodman/Holmes forge I was impressed with its appearance. When it was fired and I saw it perform I was persuaded that it was a practical project for a how-to manual and I urged Bill and Bob to go for it. Fortunately notes and drawings had been kept so this book is their response.

If you are working with metal you will eventually want to raise it to high temperatures to change its state, its shape or its degree of hardness. This piece of equipment will enable you to do it.

There are several unique features of this amazing piece of shop equipment. The most outstanding feature is the high output atmospheric burner. The cleverness of arranging twin flames that impinge on each other results in a single concentrated flame that raises temperature rapidly. But radial holes that admit the extra primary air, thus eliminating the need for a blower, are the master stroke..."

Unka Dave is right. This is a great forge/oven. Sure, with luck I can heat chunks of iron hot enough in my charcoal barbeque grill to hammer them into shape on an anvil. But when it comes to wanting to precisely heat treat a tap or other tool, this is the device you and I need.



This is the usual Gingery quality: drawings, parts lists, how-to, even details on the pyrometer. This is a gas fired unit, so you can use LP gas or propane, or maybe the methane seeping out of your septic tank. Well... maybe not.

Excellent project. Heat treating steel is an essential part of metal working. This will give you the precise control you need. Order a copy. 5-1/2 x 8-1/2 softcover 72 pages

No. 1558 $15.95

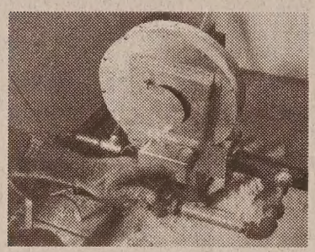
Building a Gas-Fired Crucible Furnace

by Dave Gingery

Dave will show you how to build a furnace that will enable you to melt 20 pounds of cast iron in a crucible with natural gas. When the melt is ready to pour, both the top and body of furnace raise up so that you can grasp the white hot crucible from the sides making the crucible easier and safer to control than if you had to use tongs to lift the crucible straight up as is done with other furnaces.

Check our website for color photos of this furnace!

Although charcoal is widely available, it is messy and somewhat expensive. Gas is low-cost and clean, but requires a more complicated burner. Dave will show you all the tricks, including how to build the centrifugal blower, so that you get a hot, efficient and quiet gas burner.



You get the usual wall-to-wall how-to the detailed information that Dave is famous for. Six chapters cover basic design, building the furnace body, building the frame, building the burner, crucible and tongs, and operating the furnace. You get photographs, drawings and proven techniques.

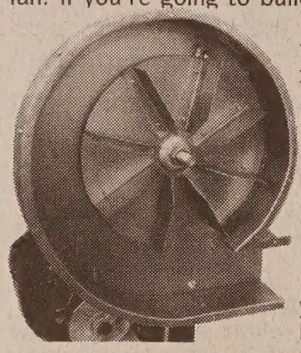
Excellent! You can pour your own cast iron castings, quickly and safely adding a whole new dimension to your machine shop. Get a copy of this. Highest recommendation!

5-1/2 x 8-1/2 softcover 108 pages
No. 1281 $12.95

Design & Build Centrifugal Fans

by Dave Gingery

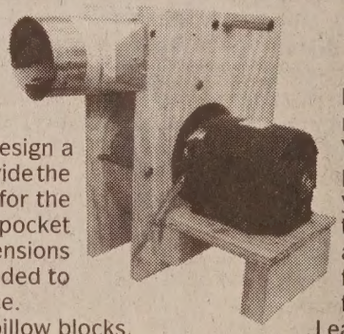
There are low-cost centrifugal fans available, but rarely will they do exactly what you want them to. If you're building a small furnace to melt aluminum, you can use a surplus fan. If you're going to build a brass or cast foundry, you'll probably need more pressure than a make-shift fan can provide. If you're going to build a dust collection system for woodworking tools, a welding booth, or a grinding wheel, you'll find that the blowers you need are not available at low cost.



Dave will show you how to design a fan with simple math that will provide the volume and pressure you need for the system you're building. With a pocket calculator you can figure the dimensions of the fan, the size of motor needed to drive it, and predict performance.

You'll be shown how to use pillow blocks, shafting, plywood, sheet metal and other common materials to build a dirt cheap blower that outperforms any make-do blower you might find on the surplus market.

Build inexpensive powerful blowers for many uses!



Dave will also show you how to build a simple manometer and pitot tube. You can actually measure performance and fine tune your air system. Dave used this equipment to build and adjust a powerful gas burner for his iron-melting crucible furnace.

Learn how to build a dust precipitating cyclone, design sheet metal transition pieces (a very valuable skill), balance a dust collection system, build a static balancing stand, and more. Gingery's brand of simplified do-it-yourself knowledge is not available anywhere else. Top rate. Order a copy. 5 1/2 x 8 1/2 softcover 112 pages
No. 4600 $9.95

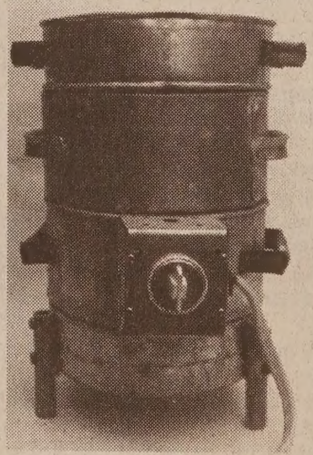
"Lil Bertha" Electric Furnace

by Dave Gingery

Let Dave show you how to melt aluminum and brass with electricity! If you have good ventilation and are careful, you can melt indoors, rain or shine. Electricity isn't cheap, but it's no more expensive than charcoal, and it's right there in the wall — all you need. Best of all, you can dial up the heat you need on thermostat, put the metal in the crucible, and go ram up your molds. After the metal melts, it will sit there at pouring temperature until you're ready. The furnace will practically watch itself.

You can build this high performance electric furnace that runs at 1800° practically forever for very little money. And it's surprisingly easy.

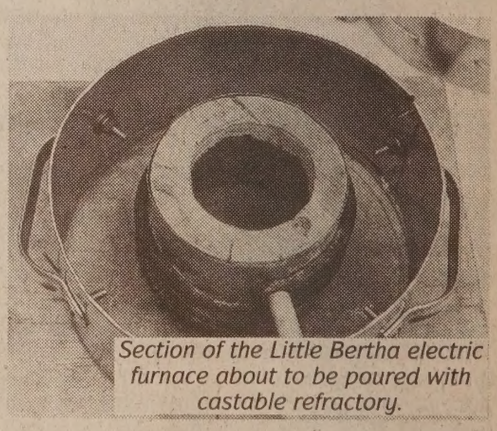
Not only that, you can use Lil' Bertha to calcine investment molds, carburize and heat treat metal, forge, temper, anneal, enamel, fire ceramics, and many other tasks. If you go to the trouble of getting the harder-to-find high temperature electric element, you can fire at 2300° for extended periods, making this furnace ideal for melting brass!



Adapt it for heat treat, lost wax, roasting possum! Melt metal!

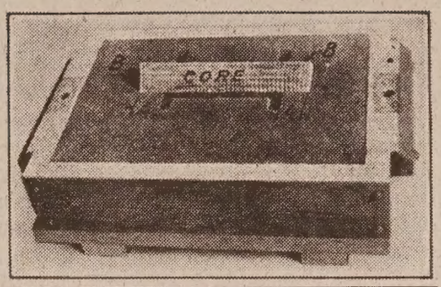
Dave will show you how to size the furnace to fit your needs, where to get and how to handle crucibles, make the electrical calculations, and more. This is typical Gingery material — top rate wall-to-wall how-to. Order a copy.

5 1/2 x 8 1/2 softcover 67 pages.
No. 4163 $8.95



Section of the Little Bertha electric furnace about to be poured with castable refractory.

Wood Pattern-Making

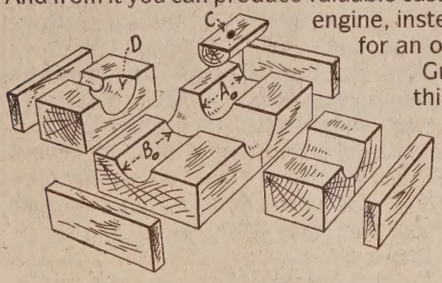


by Herbert J McCaslin
reprinted by Lindsay Publications

Melting metal isn't difficult. Burn enough fuel fast enough, and you can melt metal. What IS difficult is making a useful casting. You need to make a wooden model that can be used to make an impression in the sand into which the metal can flow and cool. Fabricating that model, the pattern, is an art and science. Here you get the secrets.

You get two parts: bench work and lathe work. In the first few chapters you get basic information on precision woodworking, but then it gets useful. Instead of building an end table, you'll learn how to build patterns so that you can cast a surface plate, clamp, link, bracket, pedestal, pawl, lathe-leg, bell-crank, tool-rest slide, steady rest, tailstock, hopper, gear case, cylinder head, starwasher, lever, rammer head, carburetor connector, glue-pot, water jacket, piston, handwheel, flywheel and more. And as you go along you are shown how to make the necessary cores, and the secrets that allow you to pour complex castings relatively easily.

You get dimensioned drawings, demonstrations of how the mold is rammed up, how to turn the cylinders needed in a wood lathe, and much more. It's all heavily illustrated. There are many pattern books out there, most of so-so quality. This is one of the very best I've seen. And from it you can produce valuable castings for your lathe and model engine, instead of some huge globe valve for an oil pipeline.



Great book. If you pour metal, this is definitely something you should have. Melting metal is easy. Casting it is a different matter. Get a copy of this. 5 1/2 x 8 1/2 softcover 296 pages

No. 22059 $12.95

A Small Sample of the Contents

... **MACHINE-FINISH** Finishing the surface of metal; the indication mark used on the drawing to specify that the operation is required; finish allowance.

PATTERN 3 – PLATEN Finish allowance for cast iron; drilled holes; sandpapering small interior concave surfaces.

PATTERN 4 – SURFACE-PLATE The name of the parts or members of a casting; the requirements of a casting which determine the molding position of the pattern; draft allowance on coped surfaces; built up patterns; application of the butt-joint; glue, its preparation and use; the size, selection and use of wire brads; leather and wax fillets; the trimmer; the fillet press. Questions on patterns 2, 3 and 4. ....

PATTERN 11 – SUPPORT Shaping patterns; finish allowance on the walls of cored holes. **CORE-BOX FOR THE SUPPORT PATTERN** Shaping the cavity of semicircular core-boxes; arranging the material for core-boxes; roughing out the core cavity upon a saw-bench; the core-box plane; the rabbet-plane; testing with a try-square the accuracy of a semicircular core-box. **LAYING OUT PATTERNS**

PATTERN 12 – LATHE-LEG A pattern layout; pattern construction; band-sawing; application of a templet; what to avoid when operating a bandsaw. Questions on patterns 10, 11-12. ....

PATTERN 14 – TOOL-REST SLIDE Giving greater strength to a pattern by the arrangement of the core-print; arranging a core-print so as to simplify the construction of the core-box; proportioning a core-print so as to balance a core. **CORE-BOX FOR THE TOOL-REST SLIDE** Core-frame construction. **PATTERN 15 – STEADY-REST** Simplifying the parting of a mold by the use of a dry-sand core; registering a core; strengthening a fragile section of a pattern; methods of producing openings in web members of patterns; the compass-saw. **CORE-BOX FOR THE STEADY-REST** Core-box arrangement and construction....

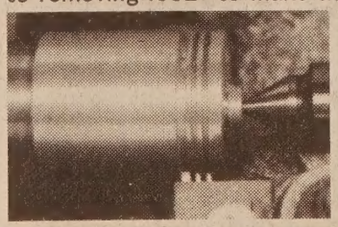
PATTERN 31 – TOOL-REST Making provision upon the pattern for the mounting of a casting between the centers of the lathe; responsibility of the patternmaker; the dowel-joint; application of counter sawing. **MOUNTING THE MATERIAL FOR TURNING PARTED PATTERNS** Methods of holding stock together while turning; the pinchdog; the corrugated-fastner; stiffening the material for turning fragile parted patterns....

Making Pistons

by Steve Chastain

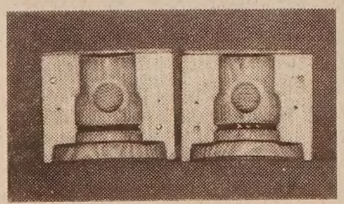
Here's the inside info on casting aluminum pistons from the ol' Sandcrab himself. He'll show you how to design new pistons taking into consideration heat flow, create the proper lands for the rings to allow high loads and temperatures, make patterns, cast the blanks in sand molds, and machine them into useable pistons.

This is not fluff. You get many details, warnings, problems and solutions from someone who has made pistons from scratch. You'll see the set he created to rebuild a 1930 Dodge engine. And he'll walk you through the whole process, from measuring the bore in the block to removing .002" to make the pistons the necessary egg shape to compensate for deflection at the pin bosses.



You'll see how to build the core box that will create the cavity for the wrist pin, the patterns and necessary gating to get a good pour. He'll even show you the results of pouring at too high a temperature.

You'll get details on the tools needed to hold the piston for machining including the somewhat special tools he used for boring and cutting the ring grooves.

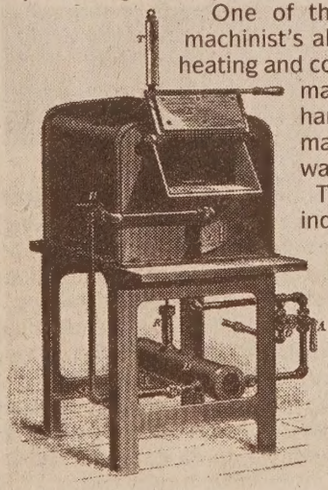


If you build engines from scratch, or have a rare old engine you want to restore, this is a book you ought to have on your reference shelf. Same top rate quality as Steve's other books. Get a copy. 5-1/2 x 8-1/2 softcover 64 pages

No. 1567 $11.95

Hardening, Tempering, Annealing & Forging of Steel

by Joseph V. Woodworth
reprinted by Lindsay Publications



One of the great advantages of steel is the machinist's ability to change its hardness simply by heating and cooling the steel in specific ways. You can make steel rock hard and brittle through hardening. You can soften it somewhat and make it less brittle by tempering. And if you want totally soft steel you can anneal it.

This 1907 third edition will show you industrial state of the art as it was then. It may be old, but the processes haven't changed. And when you see that this book is all how-to and practical recommendations together with great illustrations, you'll understand that this book is worth having.

Especially valuable information on making, hardening and finishing all types of tools, including mills, drills, taps, reamers, dies, countersinks and more. But be careful! This is old technology, and it can be very dangerous if you're not careful.

Get a copy of this helpful and useful book. Put one in your reference library. You'll have it when you need it instead of calling us someday and having us ship a copy by overnight courier at three times the price (IF we still have it then). Order a copy today!

5 1/2 x 8 1/2 softcover 288 pages

No. 20498 $9.95

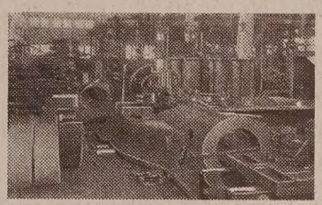
AMERICAN MACHINIST MEMORIES

Foundry 1900-01

reprinted by Lindsay Publications

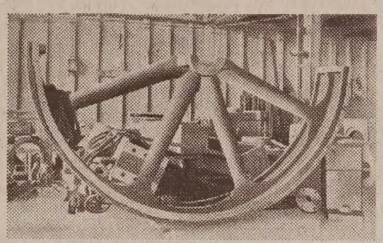
Yes, watching metal melt is fun enough. But the real excitement comes in making strange depressions in damp sand, and then seeing what appears after the metal has cooled and frozen. No matter how many castings you pour, molding and pouring nevers loses its appeal.

Here from 1900 and 1901 are mostly short articles submitted to American Machinist Magazine by experienced foundrymen on everything from casting a lathe bed to locomotive wheels.



You get helpful material on brass founding, molding a gas engine bed, casting copper in sand, casting thin sections, and more.

You also are invited to watch projects larger than you and I will ever undertake, like molding an 18,000 pound flywheel in sand on the foundry floor. But it's fun to watch and imagine that you are part of the crew. What the old timers could do with little more than sand and lots of imagination is truly amazing.



Check out the contents. Take a look at some of the illustrations reproduced here. This is no textbook. These are letters from the men who did it, and they sure did love to argue.

Fun reading. Study these tricks and tips from the old-timers not found in textbooks. Good stuff. Consider this carefully. 8-1/2 x 11 softcover 72 pages

No. 22792 $11.95

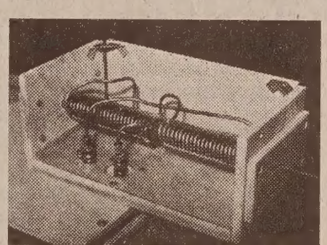
Contents

Molding a Flywheel • The Swelling of Cores • Molding a Propeller Wheel in Green Sand • Pattern Making – Using Loose Pieces Instead of a Core • Making Follow Boards • Very Different Ways of Making a Simple Pattern • That Simple Pattern • Molding Locomotive Driving Wheels • Brass Founding – Gates and Gating • Molding a Lathe Bed • Casting a Double-Thread Worm • The Draftsman, the Pattern Maker and the Molder • How to Mold a Drum • Making Half-Round Core Boxes • A Bracket Casting and Pattern – A Detail of a Locomotive Grate • Some Cheap Core Boxes • Brass Founding – The Use of Scrap Metals in Alloying • Brass Founding • Yellow Brass Scrap • Mold Construction for Crayons and Lead Balls • Rings and Ledges for Holding Babbitt in Cast Iron Boxes • Babbitt Rings and Ledges • Molding a Casting by Bedding in the Floor • Molding a Gas Engine Bed in a Three-Part Flask • Pattern Making Pipe Work • Molding a Flywheel • "Coring Out" • Fitting up a Brass Foundry • Making Sand Castings of Copper • Brass Scrap • The Pattern Work and Molding for a Single Casting • Enlarging a Core • A Process for Hardening Copper • Fastening the Arms of a Wheel Pattern • A Special Casting from a Regular Pattern • Casting a Tangye Engine Bed • Improving the Molding of the Special Casting • Molding the Special Casting • Pattern Making—Thin Rings • Molding a Grinder Bed • Making Thin Castings • Artistic Bronze Casting – French Sand • Making Barrels for Cylinder Patterns • A Pattern for a Cylinder Lining • A Straight Casting from a Crooked Old Pattern • Making Cylinder Pattern Barrels • Machine Molding • Making a Plunger Pattern • Gear Molding Machine • Molding a Crosshead Guide With a Pattern Which Makes its own Core • Fitting Up a Brass Foundry • Making a Small Casting With Green Sand Core • Pattern Making that Makes Work or the Molder • Casting a Housing for a Saw Mill • Rig for Babbiting Pillow Blocks • A Combination Pattern • Thin Brass Castings • Molding Gap Lathe Beds • Molding a Special Pipe • Molding a Special Casting • Sweeping a Mold for Paint Mill Pan • How Carbons for Arc Lamps are Made • Plate Molding for Small Work

High-Frequency Induction Heating

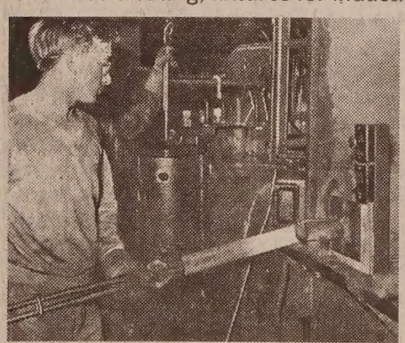
by Frank W. Curtis

Wrap a coil of wire around a chunk of metal and feed the coil with high frequency, high power AC current, and before long, the metal will be red hot and then molten.



This technique is not a simple one, and is generally not something done in a home shop. And this is NOT a how-to book. But so many people have asked about induction heating, that I knew this book should be reprinted.

This 1944 book covers principles of induction heating, types of equipment, design of heating coils, brazing and soldering, hardening and heat-treating, fixtures for induction heating, miscellaneous applications, designing for induction heating, and dielectric heating.



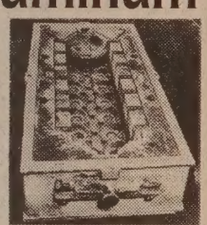
An ingenious experimenter may be able to take the information and perfect a small unit for home use. Several schematics for the generators are shown including a simple spark-gap unit and a simple vacuum tube design.

Truly a top-rate book on an unusual topic. We last offered this about five years ago. If you've ever wondered about induction heating, you'll like this. Well illustrated. Easy to read. Very informative. Order a copy. 5-1 /2 x 8-1 /2 paperback 235 pages

No. 4716 $11.95

Melting & Casting Aluminum

by Robert J Anderson

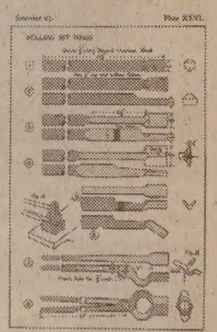


You get five chapters (the only really good chapters) from a huge 1925 engineering text covering melting practice, recycling scrap, foundry practice, casting losses and defects, and the production of die castings with permanent molds. You get discussions of fluxes, refractories, ways of evaluating scrap, pouring procedures, measuring pouring temperatures, how to cure porous castings, and much more. You'll find the die casting chapter covers the molds, their use, and troubleshooting. Old, but still, much to learn. Get one. 5 1/2 x 8 1/2 softcover 253 pages

No. 4597 $9.95

Elementary Forge Practice

by Robert H. Harcourt
reprinted by Lindsay Publications Inc



Chapters include materials and equipment; drawing-out, bending and twisting; common welds, special welds; hammer work; annealing, hardening, and tempering steel; and tool forging.

There are no photographs, but there are detailed drawings illustrating 42 different exercises which include s-hook, beam strap, twisted gate-hook, practice welds - fagot, ring - round lap weld, common eye-bolt, angle weld, forged open-end wrench, flat-jaw tongs, link tongs, cape chisel, cutting-off tool, threading tool, cross-peen hammer, ball-peen hammer, geologist's pick, machine rock-drill and more.

The author taught blacksmithing, and this was the textbook he used. It's brief, to the point, and informative. Excellent. Consider it. 5x7 softcover 148 pages

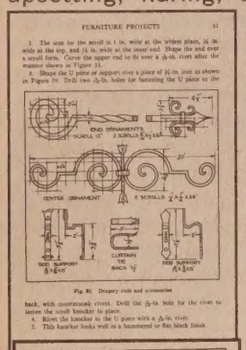
No. 21699 $9.95

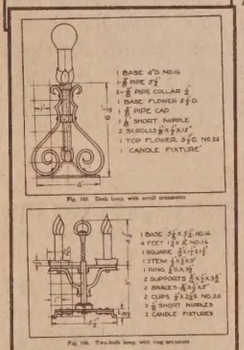
Elementary Wrought Iron

by J. W. Bollinger
reprinted by Lindsay Publications

In 1930 Bollinger was a teacher at Theodore Roosevelt Junior High School in Tulsa, and his goal was to teach young people to work iron. His book, this small jam-packed manual, is a gem. You get straight-to-the-point step-by-step how-to that is well illustrated.

You get four parts: introduction, materials and tools, operations, and projects. Most of the book is dedicated to the last two sections. Within operations, you'll learn about building a forge fire, measuring and laying off, cutting tapering, upsetting, flaring, twisting, making bends over the anvil, shaping an eye, shaping a ring, drilling, riveting, threading, brazing, hardening tool steel, finishes and much more.



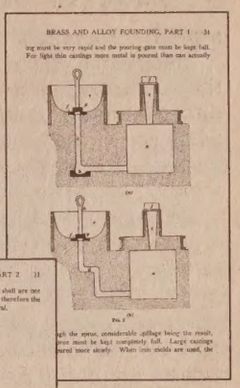


Projects are broken into
TOOLS: marking gauge, depth gauge, ice scraper hacksaw frame, ice tongs, and more.
ARTICLES OF FURNITURE & MISC: portable camp fire grate, telephone table, magazine basket, door knocker, fern stand, aquarium stand, kitchen stool, and more.
ANDIRONS AND FIREPLACE ACCESSORIES: rings design, gooseneck design, twisted design, poker, shovel, fender and more.
CANDLESTICKS: tulip design, single candlestick, two arm candlestick - twisted design, three-arm candlestick with heart ornaments and more.
LAMPS: desk lamp, two-bulb lamp, table lap with four leaf cluster ornament, bridge lamp with prism ornament, bridge lamp with scroll designs bridge, and more.
FILLER-INS: bill file, paper weight, good-luck horseshoe, and more.
The term wrought iron in the title of this book refers to a craft rather than to a type of metal. And Bollinger really does a great job in providing projects for those who want to beat metal with a hammer. Great illustrated how-to. Get a copy. 5 1/2 x 8 1/2 softcover 139 pages
No. 22105 $11.95

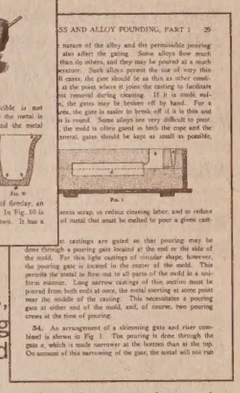
Brass and Alloy Founding

by H B Maynard
reprinted by Lindsay Publications

What you get here is a much expanded and improved version of the "Brass Founding" booklet we offered for many years. Many of the same illustrations are repeated here, but much new information and many new illustrations are provided.



In part one you get details on metals and molding, copper-zinc alloys, copper-tin alloys, aluminum alloys nickel alloys, bearing metals (babbitt), brass molding practice, materials for brass molds, molds for brass castings, cleaning non-ferrous castings, polishing and plating, economics of brass foundry, remelting and reclaiming practice and more.



Part two will show you crucible furnaces, open-flame furnaces, electric-arc furnaces, melting practice, brass-foundry crucibles and ladles, and more.

You get not only the practical how-to of handling brass, but the details on the furnaces and their design could very well help you in developing a furnace for your own use. This was part of a correspondence course training men to get a job in heavy industry during the great depression. So I'm not exactly sure how you'll build an electric arc furnace. But you get industrial details here that just don't pop up anywhere else.

You'll be told about oxidizing and reducing atmospheres, melting losses, fluxes and more. I wish it went into more detail, but I could say that about just about any book in this catalog, no matter how good it is. But what you get here is a solid introduction into non-ferrous casting, mostly brass. You can decide if you want research more complicated and far more expensive foundry texts after you've examined this.

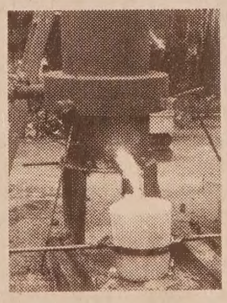
Worth having. Great illustrations. A lot of book for the money. 5-1/2 x 8-12 softcover 108 pages
No. 23160 $7.95

Iron Melting Cupola Furnaces

by Steve Chastain

Great book. Simply a great book. A bit expensive, but does it deliver! Dave Gingery loaned me a video of Steve and friends firing the cupola one evening. It was something to see! Flames shooting skyward... Blinding streams of molten iron flowing into the ladle... Sand castings being poured... Makes me want to stop publishing books and start pouring iron!

You get complete plans and operating instructions for a 10" diameter cupola. HOLD IT! Now before you thumb your nose at me and start telling me that 10" ain't much of a furnace, I must remind you that a cupola is a fast melting furnace. With nothing more than a shop vac you can melt 330 pounds of iron in an hour's time. Put on a high pressure blower and you'll get more than 600 pounds of iron. And because you must have your sand molds already formed and in place before you start the heat, that means you'll need about 2 tons of foundry sand to accommodate such a large amount of metal!

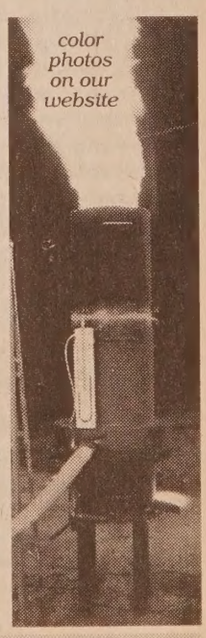


Steve will show you how to scale this fine little furnace up to produce more than a ton of iron per hour. But will you have enough sand for molds? I doubt it. You would need an army of gorillas to wheel that kind of melt...

Chapters include theory and design considerations, building a 10-inch cupola, cupola operation, air supply and blowers, designing centrifugal fans, construction of centrifugal fans, construction of pitot tube and manometer, calculation of air flow, additional cupolas based on the 15" shell, oxygen enrichment, purchase of coke and more.

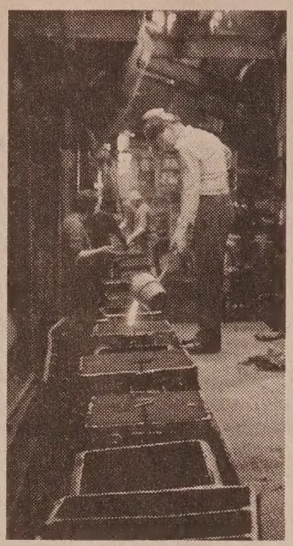
You get a small book. It's so good you'll wish it were 500 pages. But reading t'aint the same as doin'. Read the 128 pages, then get off your butt and build a furnace. The most difficult part will probably be getting the coke. And he'll advise you on that, too.

Fantastic book for the foundryman. Stewart Marshall is impressed. Last time I saw Dave Gingery, he went on and on about how great this book was gonna be. And I have to agree. Get a copy. Pure meat. No fluff. Solid, proven how-to. I only wish it were five times bigger. Get a copy! 5-1/2 x 8-1/2 softcover 128 pages
No. 1505 $19.95



Out of the Fiery Furnace

THE IMPACT OF METALS ON THE HISTORY OF MANKIND



by Robert Raymond

From the backcover....

"...How did early man divine the existence of metals, locked up in the rocks? What was the first metal that he learned to use? ...

The human race has existed as a species for perhaps two or three million years, but we have known about metals for only the last ten thousand years. In that short span, however, we have become an utterly metal-dependent society. Our cities, transport, communications, entertainment – every aspect of our daily lives depends upon the copious use of gold, silver, iron and steel, copper, aluminum, lead, and a score of other metals.

In these pages Robert Raymond follows the fascinating route from the earliest known metal smelting site, in the arid Sinai Desert of Israel;

to the floodplain of the Yellow River in China, to discover the secrets of the exquisite Shang bronzes, and to reveal newly-discovered iron-casting techniques which were 1500 years ahead of the West; to the stronghold of the Hittites in Anatolia, where the Iron Age may be said to have begun; to villages in India where metal-working techniques have hardly changed in 5000 years; to the misty peaks of the Andes in Peru, in the steps of the conquistadors' savage treasure-hunt for gold; to the gaunt ruins of the Industrial Revolution in England; to the world of mechanical robots in Japan; and to the desert sands of Alamagordo in the United States, where the unstable metal uranium was made to produce the world's first atomic explosion....

This is the story of man the metalsmith, through all his amazing creations, from the most sublime works of art to the most devastating of weapons, and of his raw materials..."

Fascinating book! Because it covers a fascinating topic. But unfortunately, I don't expect to sell many, and you probably won't be seeing this book in many future catalogs. Why?

Well, there are two broad categories of people: the Dave Gingery types and the bozo's who don't want to know nuthin' and want Dave Gingery to tell them everything they want to know. Ask the bozo's where Dave got his information, and they explain that he's a genius. Nope. 'Tain't true. Dave got his information from books like these. He'd devour this one if he were still with us. After all, his charcoal foundry is just a modern version of so many of the furnaces documented here.

Chapters include from stone to copper, the rise of bronze, bronze gives way to iron, swords and ploughshares, shining conquests, a world-wide contagion, the revolution of necessity, steam and steel launch the revolution, into the machine age, from alchemy to the atom, and more.

This is the story of metal and how is was manipulated with the simplest of tools by people with minimal knowledge. And the results are remarkable.

If you're a Dave Gingery type, curious as to how we got to this point in history, you'll like this. Whether you're "helping" Abraham Darby solve the coking process at Coalbrookdale or "panning" for gold in California, you'll find much to fire your imagination.

On the other hand, if you're a bozo, well...

Excellent book. Background information all expert metalworkers should know. If you haven't researched the history of metal yet, here's your chance. Color photos. Great text. And an incredible true story. Expensive, but worth it. Consider it carefully. 8-1/2 x 11 softcover 274

No. 1571 $29.95

Manual of Blacksmithing

by John R. Smith

reprinted by Lindsay Publications

From 1902 comes this noticeably different smithing book. Chapters include forges and appliances, hand tools, drawing down and upsetting, welding and punching, conditions of work: principles of formation; bending and ring making; examples of forged work; cranks, model work, etc.; homemade portable forges, and manipulating steel at the forge.

What makes this special are topics generally not seen in other books. For instance: an illustration of "Elevation of Appliance for Rounding Bolt Heads" and "Apparatus for Lifting Heavy Forgings". You'll see a machine for bending iron strap, and leveling block with screw, a leveling block with bending templet, and details on building two different portable forges including construction details on the two-stage foot-operated bellows, and more.

This book glosses over the basics and throws interesting hardware at you. Great illustrations. If you spend hours at the forge or are preparing to, this is worth having. Get a copy. 4x7 softcover 158 pages

No. 21281 $9.95

Forgecraft

LIMITED SUPPLY! ORDER NOW!

by Charles Philip Crowe

reprinted by Lindsay Publications Inc

A 1913 textbook: Chapters include the forge, tools, materials used, formed work, hooks and chains, welding, special welds, heat treatment, tool smithing, hardening and carbonizing, tempering and an additional chapter on metallurgy.

You'll learn the basics of bending and welding stock into rings, drawing tapers, forging a corner, and much more. You'll find these same lessons in other books, but here you get action photos taken with the work on the anvil. You'll learn what constitutes the design of a good hand forged chain hook and how to make it. You'll see how unusual welds are used in a forged swivel, a hook with eye, a square socket wrench and more. Study the photos and watch two professional blacksmiths forge a cutting tool for a large lathe. That's something to see. Excellent. Get a copy. 5-1/2 x 8-1/2 softcover 175 pages

No. 21087 $9.95

Other Great Books Still Available...

THE COMPLETE MODERN BLACKSMITH

by Alexander G Weygers

Loaded with practical easy-to-read how-to text with countless beautifully drawn illustrations in the margins. Learn everything from how to the make the chisels you'll need to carve that marble bust of your mother-in-law to getting that old metal lathe that you pulled out of the bottom of the river going again. 8-1/2 x 11 softcover 300 pages

No. 1432 $19.95

PROFESSIONAL SMITHING

by Donald Streeter

Here traditional smithing techniques are presented in clear, step-by-step text and photographs Including detailed descriptions of work space layout, specialized tools and techniques, whitesmithing, toolmaking, and locksmithing. Plus, special emphasis on the crafting of early high quality, handforged kitchen utensils, fireplace tools, locks, keys, and decorative ironware: hinges, hasps, latches, bolts, hooks, springs, and more. 8 1/2 x 11 softcover 132 pages

No. 1472 $22.95

Navy Foundry Manual

by the United States Navy
reprinted by Lindsay Publications

Looking for a great foundry handbook? I hate to admit the government ever did anything right, but this 1958 NAVSHIPS publication is a gem. It's loaded with some of the best foundry photos and drawings I've ever seen. You can learn by merely studying the illustrations.

From the preface –

"The Manual is divided into two general sections. The first section, chapters 1 through 13, contains information of a general nature, such as 'How Metals Solidify,' 'Designing a Casting,' 'Sands for Mold and Cores,' 'Gates, Risers, and Chills,' and 'Description and Operation of Melting Furnaces.' Subjects covered in these chapters are generally applicable to all of the metals that may be cast aboard ship.

"The second section, chapters 14 through 21, contains information on specific types of alloys, such as 'Copper-Base Alloys,' 'Aluminum-Base Alloys,' 'Cast Iron,' and 'Steel.' Specific melting practices, suggestions for sand mixes, molding practices, gating, and risering are covered in these chapters.

This manual has been written with the 'how-to-do-it' idea as the principal aim. Discussions as to the 'why' of certain procedures have been kept to a minimum. This manual contains information that should result in production of consistently better castings by repair ship personnel."

In 1958 the government may actually have done something right!

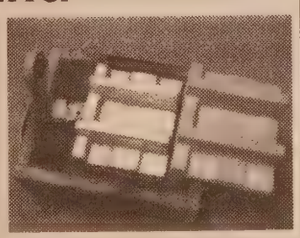
Although it pays to know why procedures are performed the way they are, the first step IS to perform them. Consider this to be pure practical how-to. It delivers. Excellent book. No two ways about it. If you pour metal, you need this book. Get a copy of this. You won't be disappointed. A gem! 8-1/2 x 11 softcover over 300 pages

No. 20072 $19.95

HOW TO

Cast Metal in Sand

by Lionel Oliver



You get another book in Oliver's metal casting series. His other two booklets – flowerpot crucible furnace, and casting pulleys – are somewhat unusual. This is more generic covering much the same molding information contained in Gingery's Charcoal Foundry and other books.

But it is another slant on the process of forming sand into molds into which molten metal can be poured. If this is a skill you're trying to learn (and it's not that difficult, really), then the additional photos and diagrams presented here could be of value to you.

If you've rammed up a mold and poured metal, this won't be of much use since the info is aimed at the raw beginner.

Basic, but nicely done. I'm offering it for a while. If there is interest, we'll continue to carry it. If not, like all books, we'll soon use the catalog space to offer something else. Check it out. 5-1/2 x 8-1/2 booklet 38 pages

No. 1550 $7.95

Green Sand Casting

reprinted by Lindsay Publications

You had better have a green sand mold ready when your ladle is full of molten metal. Learn molding from this 1903 reprint.

Learn about tools, materials and methods, including sands, tempering, sieves and riddles, rammers, required hardness, deep molds and venting, drawing the pattern, closing and pouring, shaking out the casting, and much more.

Learn about molds for casting iron. You get rare illustrated how-to on making joints for irregular forms, three-part molds in three-part flasks, three part molds in two-part flasks, followboards in forming joints, plaster-of-Paris matches, match plates, gaggers and soldiers, setting of cross bars, nails and rods at joints and corners, valuable lessons on patching molds, swabbing broken corners, sleeking and printing dry blackening, skin-dried molds, types of gates and pouring basins and more. Learn about chaplets, problems such as blowholes, shrink holes, shrinking and contraction, techniques of proper feeding, and on and on.

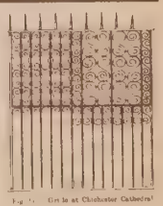
Build Gingery's charcoal furnace. Ram up a mold, melt the pistons out of your car and make a pour. Essential book for your foundry library. Excellent book. Get a copy! 5 1/2 x 8 1/2 softcover 174 pages

No. 4082 $9.95

Alley pickers can use a charcoal foundry (page 39) to melt beverage cans with charcoal or coal (if you can stand the smoke) and to cast obscene statues. Cans are made from very pure aluminum, and will serve your perverted needs very well. But if you're going to cast machine parts, you'll want an aluminum alloy formulated for casting. Pistons seem to make very nice castings. Try the local automotive machine shop. (And if you decide to make anatomically correct castings, fer gawd's sake, don't let the old ladies down the street see them...)

Bent Iron Work

by Paul N. Hasluck
reprinted by Lindsay Publications Inc



Some of this appeared Hasluck's "Metal Working" described elsewhere in this catalog, but you get much more here.

Consider this light blacksmithing. You don't need heat, but you do need a bench anvil, hammers, pliers, and other sturdy tools to turn iron strap into fancy lamp brackets, vase stands, candlestick brackets, unusual picture frames, fancy grills, fire screens for your fireplace and much more. Fastening is done with simple clamps and rivets.

Chapters include tools and materials; bending and working strip iron; simple exercises in bent iron; floral ornaments for bent iron work; candlesticks; hall lanterns; screens, grilles, etc; table lamps; suspended lamps and flower bowls; photograph frames; newspaper rack; floor lamps; and miscellaneous examples.

Projects he shows are British in design: grills and screens from Winchester and Chichester Cathedrals, and Westminster Abbey, and the like. Beautiful stuff.

Small book from 1903. We enlarged it somewhat to fill the page, and so we old codgers can read it more easily. Loaded with great how-to. I've got a copy here waiting for you. 5 1/2 x 8 1/2 softcover 160 pages

No. 21842 $9.95

HOW TO BUILD THE WET/DRY VAC

Precision Air Controller

FOR FORGE & FOUNDRY

by Don Meador

It's not all that difficult to put together a small forge, fire pot, or foundry furnace for very little money. But buying a new blower to drive the fire can set you back. Minimal imagination immediately suggests using a small appliance like a hair dryer or vacuum cleaner to provide blast. But then you find that you can't easily control the amount of air hitting the fuel. Until now.

The blacksmithing fanatic author will show you how to tame the wild blast of a shop vac to produce exactly the heat you need to work metal. He'll show you the results of his experimentation using hardware store valves and components to create a blast control, and how to connect it to a commercial firepot, Meador's own firepot design, or the classic Gingery charcoal foundry.

Conceptually, the design is really simple, almost obvious. Like everything else, the devil can be in the details. And instead of making unnecessary mistakes which run the cost up, this little booklet can help you get it right the first time. You'll save time and money.

A nice little booklet with photos and drawings worth having. Get one. 5-1/2 x 8-1/2 booklet 22 pages

No. 1566 $5.95

Blacksmith's Firepot

by Don Meador

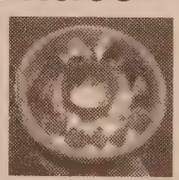
Build a moveable furnace on legs traditionally used by farriers. But you could use it as a small forge, heat treating, etc.

With simple tools you can build a fire pot 7 1/2" square internally and 4 3/4" deep, blown by a shop vac (here, at least). You can fire it with grocery store charcoal, coal, or even coke.

Simple, but useful project. Detailed instructions and many drawings. Good information. Consider it carefully. 8 1/2 x 11 booklet 36 pages

No. 1363 $10.95

Flowerpot Crucible Furnace



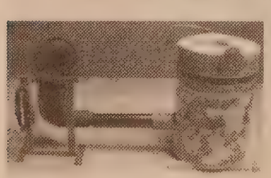
by Lionel Oliver.

Oliver has taken the basic Gingery-style charcoal furnace and has simplified it a step by using a flower pot to hold the fire, putting between it and the steel popcorn can (I wonder how many of those I've thrown away...) and ordinary brick mortar.

The flower pot liner is loaded with charcoal and a three inch crucible is used to melt a small load of metal, enough for very useful castings.

And since mortar is not a refractory, it will calcine after a while, losing its strength, and the thin steel can will rust. In other words, this furnace is simple, goes together in a hurry, but also wears out in a hurry. But if you just want to try pouring a few castings, this is a great place to start.

Oliver discusses building the furnace, preparing to melt, gives you brief instruction on melting and pouring, and then throws maintenance tips and ideas at you for exploration. Small, self-published booklet on a simple, small furnace that does the job! A great place to start. Try it.5-1/2 x 8-1/2 booklet 33 pages



No. 1541 $7.95

Build A Carbon Arc Torch

by Don Meador

Put a large electrical current between a slightly separated pair of carbon electrodes and you get a 9000° F flame useful for melting metal, welding and brazing. Meador will show you how to build a carbon arc torch using wood, tubing and commonly available carbon electrodes. You really don't need much money or expertise to build an excellent working torch.

You do need a source of high-amperage current such as an arc welder, or use the simple water resistor below. 5-1/2 x 8-1/2 booklet 30 pages

No. 1349 $6.95

Water Resistor

FOR CARBON ARCS

by Don Meador

Build the necessary water resistor that allows you to plug your carbon-arc torch directly into a standard outlet. You get design equations and theory, and practical how-to on turning a five gallon pail and common materials into a safe, heavy duty resistor. 5-1/2 x 8-1/2 booklet 52 pages

No. 1440 $7.95

Salvage Carbon Rods

by Don Meador

You can extract carbon rods from used batteries, remove the chemicals, and insert it into a thin-wall brass tube for use in the torch described above. Chemicals could be dangerous if improperly handled. Interesting. 5-1/2 x 8-1/2 booklet 19 pages

No. 3029 $4.50

Build a Full Size Coal Forge

by Don Meador

This design uses commonly available angle iron, sheet metal, nuts, and bolts. The project requires simple hand tools with the exception of something to cut the angle iron... All the pieces are assembled with nuts and bolts. Since welding is not required, the coal forge is a good project for either seasoned or beginning blacksmith.

Even though the book is mostly on how to construct the forge shown, details of how the dimensions were determined are discussed so that the plans can be modified for anyone's particular needs.

Decent plans at a reasonable price. Get a copy and make horseshoes for your camel. Or whatever. Good plans. 8 1/2 x 11 booklet 36 pages illustrated

No. 1478 $9.95

How to Build a Forge

by David Wimberley

Build a simple side blast forge for blacksmithing and melting aluminum. All you'll need are firebricks, pipe, an old water heater and a vacuum cleaner. Build this hooded forge, or use your ingenuity to make a simplified version in a single afternoon! Excellent drawings and photos. 5 1/2 x 8 1/2 booklet, 15 pages.

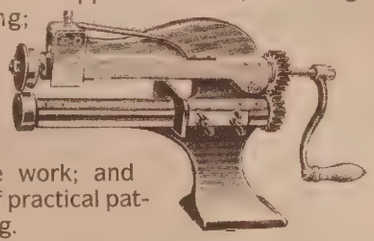
No. 845 $4.95

Practical Metal Plate Work

by Paul N. Hasluck
reprinted by Lindsay Publications

Oh, I know what you're thinking. "Metal Plate" — quarter inch and thicker. Wrong! Very wrong! This dude was British. What he was talking about was sheet metal, and how to turn it into something a bit more exciting and, to my way of thinking, more useful than furnace duct work.

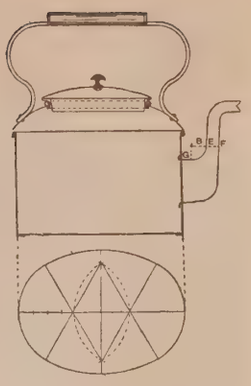
Chapters include the materials used; geometrical construction of plane figures; geometrical construction and development of solid figures; tool and appliances used; soldering and brazing; tinning, retinning, and galvanizing; examples of practical metal plate work; and examples of practical pattern drawing.



Remember this is same man who gave us the incredible book METAL WORKING – TOOLS, MATERIALS, AND PROCESSES FOR THE HANDYMAN described elsewhere in this catalog. That book provides an excellent chapter on sheet metal, but this provides much more information, much more detail.

You'll see all the stakes, hammers, punches, groovers, and shears you could want. You'll also see a burring machine (or Jenny), bench standards, tube bend rollers (slip roll), a folding machine (brake), a bottom-closing machine, a paning down machine and much more.

You'll be shown how to make trays and bread pans. If you can do that successfully, you're on your way to building tools boxes of your own design. More difficult is the fabrication of a sauce pan, a ship's ventilator (air scoop), an oval bottom tea kettle and more. Once you have completed these lessons, you should be able to fabricate almost anything.



To get from flat sheet metal to a water tight three dimensional container requires a good pattern. You'll be shown all the necessary geometry to lay out the pattern without heavy theory.

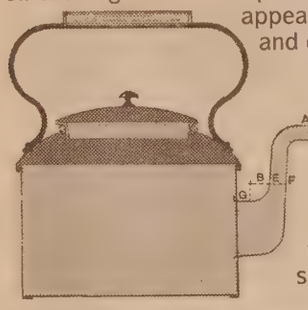
Another in the Hasluck series of "Work" books. If you work sheet metal, or plan to, this is something to have. Get a copy!
5 1/2 x 8 1/2 softcover 160 pages
No. 21591 $10.95

Tinplate Work

by Paul N Hasluck
reprinted by Lindsay Publications

Another gem from Hasluck's "Work" series from almost a hundred years ago.

In Hasluck's big metalworking volume offered elsewhere in this catalog, he devotes a chapter to working sheet metal. This is an expansion of that chapter, but here he calls sheet metal "tinplate". In fact, the plans for the oil cooking stove are repeated here. The rest appears to be different and quite interesting. Chapters include tools and appliances, elementary examples, hollowing tin plate, simple round articles in tinplate, saucepan making, square and oval kettle making, oil cooking stove, set of workshop oil cans, fancy paste-cutters (we call 'em cookie cutters), lamps and lanterns. And all of this is illustrated by almost 300 illustrations!



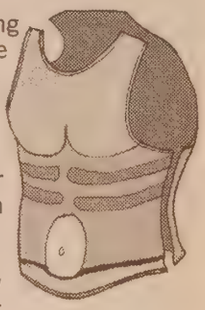
Take a large tin can and get building! Working sheet metal can be very satisfying (and inexpensive). I have to wonder if maybe some of these lanterns, carefully made and finished, might be something you could sell in crafts fairs or flea markets. I guarantee you that other sellers won't have a clue as to where you got them! Maybe you could sell wholesale to them.

Lots of illustrations and details. Same ol' high quality. (Isn't that refreshing...) Get a copy! 5-1/2 x 8-1/2 softcover 160 pages
No. 22695 $9.95

Exposé of Reposse

FOR THE BEGINNING BLACKSMITH

by Robert M Heath

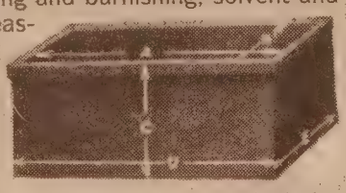


The results of hammering a sheet of metal into a three dimensional form can be stunningly beautiful. Heath provides how-to and such projects as bells, Civil War belt buckles, weather vanes, ornamental sun designs and armor. Simple drawings and text. A small, self-published book by someone who knows what he's talking about. 8-1/2 x 11 booklet 62 pages
No. 1485 $9.95

Plater's Guidebook

by Chambers & Hogaboom

Sandwiched in between pages of advertising are industrial details on polishing, buffing, rolling and burnishing, solvent and vapor degreasing, plating solutions, stripping solutions, replenishment, analysis of baths and much more. Includes formulas for plating baths from copper to nickel, chrome and silver. Coloring baths, chromic acid anodizing, and much more. Industrial secrets! Poisonous chemicals! Details from '36. 5 1/2 x 8 1/2 softcover 128 pages
No. 21451 $8.95



- Metal Cleaning
- Vapor Degreasing
- Polishing and Buffing
- Solutions for Plating
- Solutions for Chemical Cleaning
- Specifications for Plated Coatings
- Abrasive Rolling and Ball Burnishing
- Methods of Analysis of Plating Solutions
- List of Chemicals: Common & Chemical Names

Repousse Metalwork

by AC Horth

Repousse is about turning a flat piece of metal into a curved three dimensional object. With a hammer and plenty of skill you can produce everything from a candy dish to a suit of armour.

These projects will teach you the basic skills. You'll make a square mat, square tray, octagonal tray, round tray, matchbox holder, finger plate, letter rack, pen rest, gong, photo frame, sconce, salver, decorative panel, postcard rack, elliptical tray, clock case and a thermometer stand.

You get beautiful photos, drawings, plans and technique. Hammer out a replacement fender for your Stanley Steamer. Ya gotta start somewhere. This 1905 book is the place.

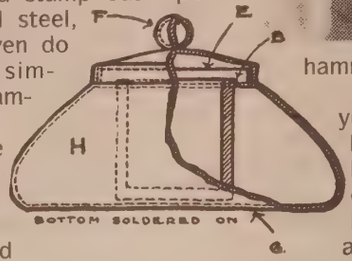
Get a copy of this. Start hammering! Make a lot of noise! Drive the wife nuts. 5x7 softcover almost 128 pages
No. 22334 $9.95

Copper Work

by Augustus F. Rose
reprinted by Lindsay Publications

All too many people dream about taking a piece of sheet metal and turning it into a automobile body or a custom gas tank for their motorcycle like those bizarre (but incredibly talented) guys on television do. Dream is about as far as most people get. You'll never amount to anything unless you stop dreaming, get off your butt, and just do it. You have to make mistakes and learn from them. You can't learn to ride a bicycle by just reading a book.

Here's an interesting way to understand working sheet-metal. This 1908 high school textbook will show you how to anneal a sheet of copper and start working it on an anvil to produce a pitcher, porringer, bowel, ink pot, or a spoon. You'll learn what types of saws, hammers, and anvils to use. You'll learn how to make simple objects such as hinges and finger pulls, and then you'll graduate to box corners. You'll learn how to make rivets, draw wire and small tubing, polish, make a stamp out of tool steel, and even do some simple enameling.



So why start here? Because you can use a small inexpensive piece of copper (get it from a local sheet metal shop or gutter fabricator) and use the basic hammering techniques that Dave Gingery (and those tattooed TV guys) use to produce three dimensional shapes. You can literally learn the basic techniques on a table top using a small piece of copper which is much softer and more ductile than steel. Start small where you can make all the mistakes and then move up to the big stuff if you find it appealing.

Work Sheet Metal!

A great way to start...

The instructions here are more brief than I would like, but if you use this in conjunction with the basic instructions in Dave Gingery's "How to Work Sheet Metal", you'll be well on the way to power hammers and an English wheel.

(And I know too many yuppies who would love to have some of the solid copper bowls and tea pots shown here on display in their kitchen. This book might give you ideas for a little handicraft business you can run out of the basement. But no promises on that.)

Nice little book for money. We have sold a great many copies over the years. If you haven't gotten one yet, then it's time to consider it now. 5-1/2 x 8-1/2 softcover 123 pages
No. 20145 $7.95

GINGERY'S
Slip Roll Machine

by Vince Gingery

Use three 1-1/2" diameter steel rolls made from pipe in a simple configuration to turn a flat sheet of 24" wide metal into cylinders of adjustable diameters. Vince used a bandsaw, drill press, and a welder to build this useful machine. A valuable tool for sheet metal workers. Usual Gingery quality. Get a copy. 8 1/2 x 11 booklet 40 pages
No. 1335 $9.95

Metal Spinning

FOR CRAFTSMEN, INSTRUCTORS, & STUDENTS

by Reagan & Smith

You can chuck a piece of sheet metal in a lathe and using simple tools spin it into a smoothly contoured shape that can become anything from a teapot to a missile nose cone. Here you'll learn historical facts about metal spinning, why people are interested in spinning, the necessary mechanical setups, spinning tools, chucks for spinning, the treatment of different metals, lubricants to be used, the actual process of spinning, and educational as well as useful projects.

Sure, you can turn a bronze bushing, but can you turn a sheet of copper into a beautiful vase or candlestick?

A simply written 1936 technical school textbook. Very few people, including expert metal workers, know how to spin. You can learn right here. Order a copy! 5 1/2 x 8 1/2 softcover 80 pages
No. 4830 $9.95

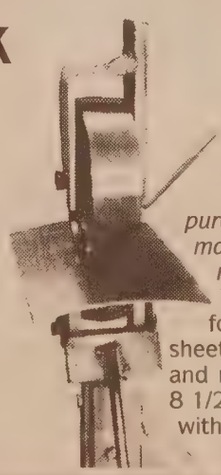
English Wheel Book

by David L. Anderson

"The English Wheel, sometimes called the wheeling machine, is a simple non-powered machine for forming a large radius bends in sheet metal. It can form simple bends or compound shapes, i.e. domed or crowned panels..."

Anderson uses the machine to create patch panels for auto restoration projects. You can build one, too. You'll need a welder and some means of cutting metal (torch or bandsaw) as well as drilling and tapping.

"Optionally, a milling machine for preparing the lower wheel slide (an optional non-machined method is also given) and a lathe for preparing the wheels would be nice. Otherwise wheels can be purchased complete for the machining jobbed out to a machine shop..."



You get drawings, photos, formulas and several large sheets of plans. A rare machine, and rare plans. Worth having. 8 1/2 x 11 softcover 40 pages with four plan sheets
No. 1336 $19.00

Metal Spinning

FROM MACHINERY MAGAZINE

reprinted by Lindsay Publications

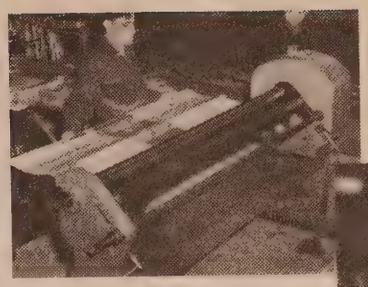
Here's a great little 1910 booklet from the publishers of Machinery magazine that will introduce you to metal spinning. See the tools, chucks, and forms, you'll need and how to use them. See a zinc lamp shade spun in one operation, a German silver reflector for a light, copper and aluminum forms that look like spittoons, and more.

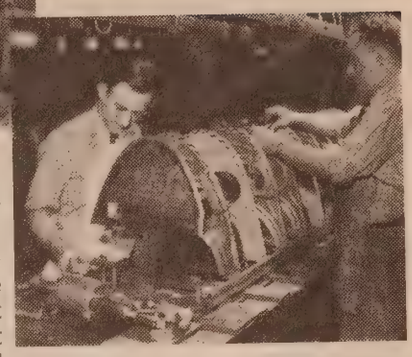
This is a great intro into converting sheet metal into beautiful and useful three dimensional forms. This is a skill to have. Order a copy. 5 1/2 x 8 1/2 booklet 38 pages
No. 21370 $4.95

HOW TO DO

Aircraft Sheetmetal Work

by Norcross & Quinn
reprinted by Lindsay Publications





Have you ever seen the smooth contours and perfect transitions on the skin of a DC-3? How did they do that? Airplanes, like custom autos, are exquisite examples of sheet metal craftsmanship. This book will show you how it was done in 1942.

Chapters include blueprint reading; shop math; properties and standards of aircraft materials; how to measure; templates; aircraft sheetmetal layout; how to cut sheet; files and how to use them; forming, stamping, and hydraulic presses; drilling and how to do it; how to rivet; jig assembly in modern aircraft factories; skin fitting; spot welding; and shop projects.

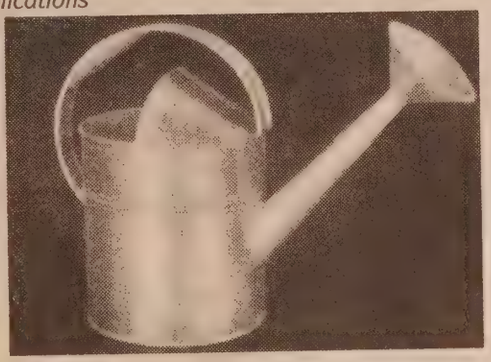
You learn to work sheet metal in the most basic terms. You'll see a man removing wrinkles from a curved sheet using a planishing hammer and bumping stake. And a man bending an extrusion to an irregular shape using a rawhide hammer over a V block. Or a man using a bucking bar while riveting. Or a man using a vixen file to rapidly trim an aluminum alloy sheet.

This is all nuts-and-bolts how-to. No fancy theory or math. One of the best sheet metal books I've ever seen. Just what you need to help you restore your Bughatti. Or make a radio chassis or tool box. Excellent book. Get a copy. 5 1/2 x 8 1/2 paperback 285 pages
No. 21893 $14.95

Sheet Metal Pattern Drafting & Shop Problems

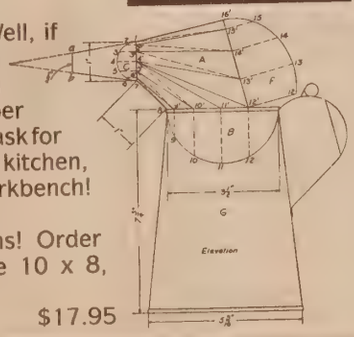
by James S. Daugherty
reprinted by Lindsay Publications

There are many sheet metal books available that will show you how to make the duct-work for your home heating system. This book takes that knowledge a step further. It begins with a clear explanation of the basics in drawing, geometry and drafting and moves from there into solving common duct work problems.



The genius of this book comes in Parts II and III where you learn how to make roman moldings with complex miters, fancy roof ventilators in several different shapes and tapering shapes-like pyramids, cones and funnels. You also get the secrets of shape triangulation, which will allow you shift the shapes from round to oblong or from square to round. This book also includes patterns for skylights, a watering can and a three-dimensional sphere.

What does this mean to you? Well, if you apply some creativity, you can turn those ugly flat roof vents you currently have into a brass or copper cupola that will make your neighbors ask for one just like it! Install a skylight in the kitchen, or better yet, above your garage workbench! The possibilities are endless.



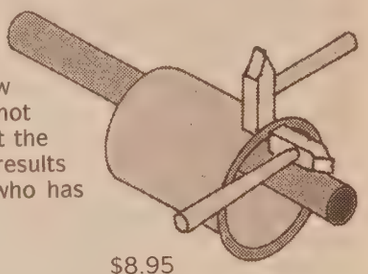
Loaded with pictures and patterns! Order one today. Great book, odd shape 10 x 8, softcover, 176 pages.
No. 22946 $17.95

DAVE GINGERY'S

Working Sheet Metal

by Dave Gingery

Let Dave Gingery get you started in working sheet metal with a hammer, a tree stump and a simple bar clamp you can attach to the front edge of your workbench. He'll show you all the basic joints and edges, and how to make them without fancy machines. He'll even show you how to make a gas tank. This is not the ultimate sheet metal book, just the straight scoop on how to get great results with simple tools from someone who has done it. Consider this carefully!
5 1/2 x 8 1/2 softcover 90 pages
No. 1334 $8.95



Dave Gingery Explains His Book...

This book was inspired when someone gave a friend of mine a furnace. Local sheet-metal people all wanted $1000 or more to install it. My friend is almost as stingy and tight-fisted as you and I so he didn't go that route. Instead, I picked up a couple of sheets of galvanized metal, a couple of joints of prefab duct and fist full of "S" slips and drives and we did the job in a half day for less than $75.00. ...We didn't have any of the fancy equipment for the job but we did it any way. That's what this book is about.

No photos of exotic equipment in these pages. And no instruction in using press-brakes, leaf brakes, slip-rolls, bar-folders, turning machines, edgers, crimpers, lock-formers or any of the commercially built equipment found in commercial shops... Instead, this book shows you how to do the work without machines.

Sheet metal work was my second trade and I worked it for years... So here I am showing how to produce what you need without the machines, and there is hardly a limit to what can be made.

The chapter on layout is brief but it covers all the basics. It would be no trouble at all to write 500 pages on pattern problems and examples alone. But that has been done very well by many [others] in the past. My message is that the principles are few and simple.

HOW TO

Weld Damn Near Anything

by the producers of Monster Garage

From the introduction:

"On the Discovery Channel series Monster Garage, a team of talented fabricators, designers and specialists come together to transform ordinary vehicles into fantastic machines. A key part of this transformation is shaping and working with metal, and welding is perhaps the most crucial skill of a good fabricator.

How to Weld Damn Near Anything covers the basic techniques of welding, from 'stick' welding through to more sophisticated methods such as MIG and TIG welding. This book will not only give the reader a solid grounding in the basics of welding, but it will also introduce methods that can be used in high-end custom projects to bond lighter, stronger metals."

Chapters include: Comparing Welding Processes: TIG, MIG and Oxyacetylene; Shopping for Welding Equipment; Fitting and Cleaning; Jigging; TIG Welding 4130 Steel Tubing; TIG Welding Aluminum and Magnesium; MIG Welding Steel and Stainless Steel; MIG Welding Aluminum and Magnesium; Gas Welding Steel and Stainless Steel; Gas Welding Aluminum; Plasma Cutting; Shielded Metal Arc Welding; Welding Shop Safety; and more.

This is a great book and it's not. You're not going to learn to weld from this picture book. Not at all. For instance, the authors will tell you why you should never braze chrome-moly, or that two of the most common aluminum alloys can't be welded and what will happen if you try. They will tell you how to solve the problem, but this is not about teaching basic welding with arc or flame.

In other words, those guys on television look like they know everything. The truth is, what you think is genius is really experience. They've made a countless number of mistakes over the years before they found out how to weld successfully. This book is about mistakes and their avoidance. If you weld or intend to learn, this is worth having in your library.

More pictures than text. Topics are covered very quickly. But the text present reveals valuable lessons which should make you a better welder. Unusual content. Worth having. Get a copy. 8 x 10-1/2 softcover 160 pages

No. 1569 $19.95

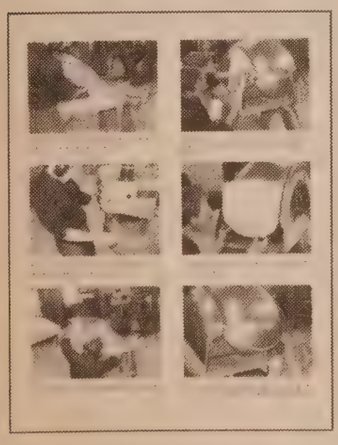
Advanced Sheet Metal Fabrication

by Timothy Remus

Turning a flat sheet of steel or aluminum into a beautifully contoured three dimensional form for use as a fender on a classic auto, the gas tank on that chopper you're building, or as an urn for your mother-in-law's ashes, is art. Pure art. And you can learn the necessary skills from the six pros who work is shown in this picture book.

Detailed are seven projects: fabricating the rear-end of a half-midget race car, replacing the wheel fairings of a Cessna, making a new nose for a 1955 Lotus race car, building a custom motorcycle gas tank, creating replacement fenders for a 1922 Rolls Royce, fabricating an aluminum patch panel for a '48 Alfa-Romeo, and scratch building a futuristic rocket-like aluminum body for a gas-turbine motorcycle. (I guess Leno has one of these, too!)

You get wall-to-wall photographs showing the projects progressing. You'll see all the techniques whether it's hand-hammering, using a giant power hammer, or an English wheel on through to the welding, trimming and finishing.



You'll see how a pro can take a fragment of a rusted fender, use it to create a master pattern, and from the pattern create an exact replica. You'd swear it was magic. But it's not. You'll see how it's done. From building the buck to TIG welding the panels.

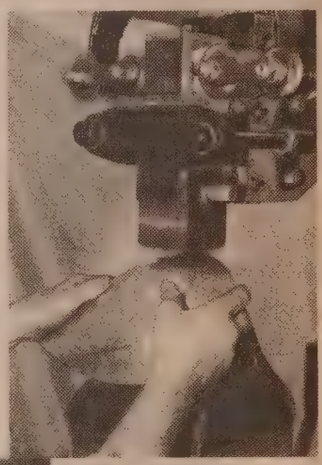
One glance through the pages of this book, and I knew it had to go in the catalog. Over 300 photos. Most in color. Wall-to-wall how-to. If you want to learn more about sheet metal, I think you're a bit daffy if you don't have this book. It's good! 8-1/2 x 11 softcover 144 pages

No. 1554 $24.95

Ultimate Sheet Metal Fabrication

BUILD FROM SCRATCH WITH ALUMINUM AND STEEL

by Timothy Remus



If you liked Advanced Sheet Metal Fabrication, you'll want to get a copy of this book. Part of the same series, Ultimate contains information on layout of a project, stretching and shrinking, building simple tooling, using the English Wheel, welding aluminum and steel, choosing the right material for the job.

The jobs illustrated include:using a power hammer to make a hot rod deck lid, forming the rear section of a pedal car, forming a motorcycle fender, forming the front half of a car fender, making a blower scoop and making a door skin for a 1934 Ford.

Visit the shops of skilled craftsman and watch them turn sheet metal into parts not available anymore. More than 350 photos.

Get your copy today. 8-1/2 x 11, softcover, 144 pages.

No. 1561 $19.95

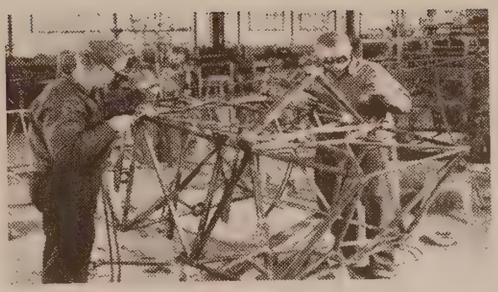
Aircraft Welding

by L S Elzea
reprinted by Lindsay Publications

Boneheads think you must have the latest high tech equipment before you can do good work. Gotta have a CNC machining center, a network analyzer, or the latest MIG or TIG welder. Nuts. A craftsman can work wonders with simple tools. And it's that craftsmanship that is taught here.

In 1942 Walter Beech commented *"The Beech Aircraft Corporation at the present time has in its employ more welders who have been trained under the supervision of Mr. Elzea than have come from any other one source."*

So how were WWII airplanes put together? Rivets. And welds produced by oxy-acetylene torches. Here you get the secrets of how metal tubes and other components were combined to build engine mounts, landing gear, and whole fuselages. This is about high performance welding with simple gear.



Chapters include: equipment, tools, weld characteristics and types, stress, jigs, methods of construction, welding aluminum and stainless, exercises in welding steel aluminum and stainless, drawings and prints, air corps specifications and more.

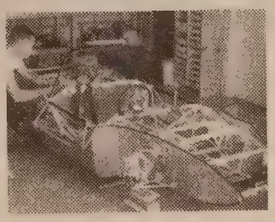
Since this is a textbook published to train the countless welders that were to be needed for war production, you know that it is simply written, loaded with straight-to-the-point how-to, and is heavily illustrated with photos from Boeing, Douglass, Beech, North American, Martin, Lockheed, Cessna, Ryan, and other aviation firms.

If you really want to make your torch do amazing things, then a copy of this book and get started. Excellent book. Get one. 8-1/2 x 11 softcover 136 pages

No. 22911 $15.95

Performance Welding

by Richard Finch



From the backcover:

"Planning to build the ultimate high-end race car chassis? How about complex aircraft structures and engine mounts? If these are your goals, you know that perfect, error-free weld joints are essential in obtaining successful results. Standard welding practices and materials just won't cut it.

Performance Welding is your complete guide to high-quality welding. From selecting equipment to jigging and fitting to welding 4130 steel, stainless steel, aluminum, and magnesium, this book covers it all. Learn all the techniques professionals use in building Indy and NASCAR race cars, experimental aircraft, and custom motorcycles.

Author Richard Finch – a certified welder and welding consultant to NASA tells you everything about high-tech welding. His easy-to-understand text, combined with 230 photographs and tables, makes it easy to achieve perfect welds. If you're serious about welding, here is the most comprehensive information available."

Heavily illustrated. Excellent book. Order one! 8 1/2 x 11 softcover 160 pages

No. 1457 $19.95

Contents

MIG, TIG and Oxyacetylene Welding Processes • Shopping for Welding Equipment • Fitting and Cleaning Metal • Jigging • TIG Welding Steel and Stainless Steel • TIG Welding Aluminum and Magnesium • MIG Welding Steel and Stainless Steel • MIG Welding Aluminum and Magnesium • Gas Welding Steel and Stainless Steel • Gas Welding Aluminum • Welding Shop Safety • Welding Supplies • Sources for Metals • Shop Math • Glossary of Welding Terms

Welding Projects

by James A. Ruck

Apparently over the years the author (a shop teacher in the farmlands of Wisconsin) collected plans for useful equipment that his students could build, and in the process learn to weld.

Each plan provides a parts list, dimensions for each part and an overall view of how it goes together. You're supposed to know something about welding. This is not for raw beginners. But it's not that difficult either. Remember Ruck teaches high school students. So YOU can build almost anything in here.

You'll be fabricating this equipment from rounds, squares, tubing, square tubing, black pipe, angles, flats, channel, sheets and plate. A few projects may require special equipment such as a lathe or milling machine. Most will require the usual sawing, filing, and maybe a sheet metal brake, and so on. Get one. 8-1/2 x 11 softcover 96 pages

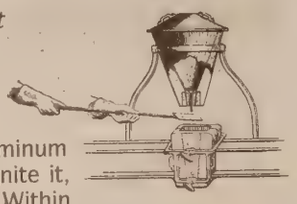
No. 1483 $18.00

68 Different Plans!

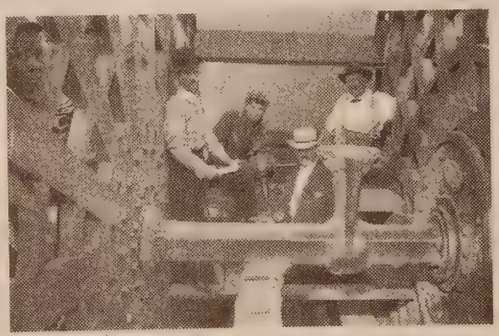
baseball backstop • basketball backboard stand • snow ski rack • water ski/wakeboard trick trainer • snowmobile dolly • snowmobile stand • bear paw style snowshoe • canadian style snowshoe • JR 50 ice boat • deer hunting tree stand • deer dolly • parallel bars • skateboard rail slide • boat anchor • soccer goal • push-up bars • butterfly bench • sit-up bench • curling bench • weightlifting bench • inclined bench • lat machine • squat rack • stair stepper • dip press/leg lift • chin-up bar • weight storage tree • dead lift bar • shop dolly • welding tank cart • shop tool cart • portable welding curtain • fold-up miter saw table • saw table extension roller • drywall stilts • trailer dolly • portable vise stand • engine stand • hydraulic engine lift • engine dolly • hydraulic bearing press • lifting gantry (chain hoist) • frame-mounted receiver hitch • hitch-mounted carrier • adjustable height hitch • pickup truck carrying rack • motorcycle repair stand • car ramp • jack stand • pickup truck door step • drafting table • computer table • guitar stand • music stand • electric piano stand • and much more!

Thermit Welding!

by Richard N. Hart
reprinted by Lindsay Publications



Take a mixture of powdered aluminum and iron oxide, ignite it, and stand back! Within seconds the mixture flames to twice the temperature of molten steel, and from the bottom of the special crucible comes molten iron. In 1914 Thermit was a cheap and simple way to weld heavy iron.



A simple mixture of iron oxide and aluminum powder was used to weld this broken steam boat paddle wheel axle a hundred years ago. (Much the same stuff as the fuel in the solid rocket boosters that put the space shuttle into orbit! Same stuff that was painted onto the skin of Hindenburg that caused it to burn so quickly! –as reported recently in a Nova program on PBS)

Learn about the invention of Thermit process, welding rail, special crucible and rail molds, butt welding of pipes, broken locomotive frames, and much more. You get detailed information on the chemistry involved, how to set and preheat pieces, how and why to add nickel or titanium, the use of Thermit in foundry practice, examples including photos of repairs on a torpedo boat rudder, a locomotive frame, even a steamboat paddlewheel axle!

Unusual process! Loads of rare information! Get a copy! 5 1/2 x 8 1/2 booklet 40 pages

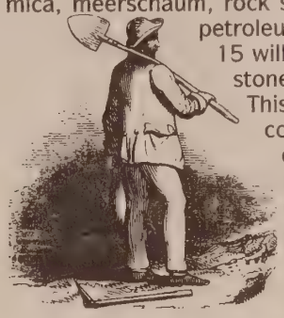
No. 899 $4.25

The Prospector's Field-Book and Guide

by Prof. H.S. Osborn
reprinted by Lindsay Publications

Nuts! You don't need satellite photographs and million-dollar equipment to find valuable ore deposits. The old timers didn't. And in this book one of those oldtimers will teach you the state of the art as it was in 1901.

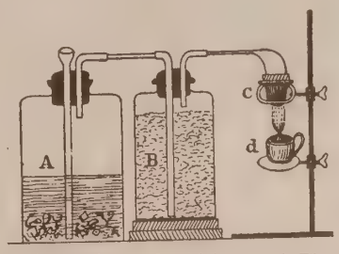
He'll teach you the basics of mineralogy, blowpipe analysis, crystallography, surveying, ore analysis, and special mineralogy. Then you'll get detailed information on tellurium, platinum, silver, copper, lead, tin, mercury, bismuth, nickel, cobalt, cadmium, zinc, iron, aluminum, antimony and manganese. A chapter touches briefly on alum, arsenic, borax, clays, mica, meerschaum, rock salt and more. Another chapter goes into petroleum, ozocerite, asphalt and even peat. Chapter 15 will even teach you about gems and precious stones.



This book can be used all over the US from East coast to West. Here in the Midwest where coal and lead ore are about the only things mined, traces of gold have appeared while drilling water wells, and low-grade deposits of iron ore have been found along the river. There's probably many other minerals yet to be discovered.

You can explore for gold, silver and platinum and hope to get rich. More realistically, it might be fun to locate a local vein of iron ore or copper ore and try smelting metal the way the ancients did it.

Imagine the fun you'd have bragging that you not only built a lathe, but that you actually extracted the metal used in its construction from ores you dug yourself! How many people have done that? The first step in doing that is finding the ore, and this book can certainly help.



If nothing else, you'll find this to be an easy-to-read text on minerals and basic geology. And it's good. The first edition came out in 1892, and this is a reprint of the 5th edition in 1901. So you know this was a popular book in its day. Get a copy.
5 1/2 x 8 1/2 softcover 308 pages
No. 4570 $11.95

We Don't Recommend Books!

Every once in a while, someone will ask to recommend the "best" book on lathes, or crystal radios, or chemistry, or some other topic. And my answer is that I don't recommend books. How am I to know what the best book for you might be? I'm afraid I can't read your mind! That's your job.

The books you find in these catalogs are high quality. I don't have room to offer everything, so I stock the best books I can get. All of these books are recommended. They're all excellent quality.

A person who wants a recommendation is afraid to make a decision... afraid they might buy the "wrong" book. That kind of a person will not be much of a tinkerer, since building almost anything inevitably results in mistakes and misfortunes from which valuable lessons can be learned. It may be maddening, but we really do learn much more when things go wrong, than when things go right. Being indecisive or feeling crushed when a new device does not perform as expected is a character trait no successful inventor can afford to possess. In other words, if you have to have someone else choose your books for you, I'm not sure you have what it takes....

And if you think I'm feeding you a line of BS, just ask ol' Tom Edison. He'd tell you the same thing if he were still around.

Assayer's Guide

PRACTICAL DIRECTIONS TO ASSAYERS, MINERS AND SMELTERS

by Oscar Lieber
reprinted by Lindsay Publications

If you were adventurous in 1849, you took a train and wagon to seek your fortune in the California gold fields. After a lot of searching and hard work, you staked out a claim. But how would you know if the ore you think you've found really has much gold, or silver, or even lead? Do you send a sample back East for analysis? Hardly. You took it to the assay office, and using primitive techniques the assayer could tell you in a couple of days with a remarkable degree of accuracy if your ore was valuable. So how did he do it? The secrets are here.

This was first written in 1852 to teach people ore analysis, what we call assaying. The techniques don't use mass spectrometers or chromatographs – just simple techniques of crushing, combining and firing in a crucible. In essence the assayer smelted the sample you brought him to extract as much metal as possible.

Chapters are short and to the point. You learn about techniques for assaying gold, silver, platinum, copper, lead, iron, and mercury ores. And you get details for testing gold and silver coins, and even coal. Most techniques are true fire assays, but several use wet methods. And if you're not careful, these processes can certainly be dangerous.

These techniques look like a natural extension of foundry work. You don't need the described furnace with a 20 foot chimney. Instead you have electricity and can use a blower to get the necessary air blast. Anyone who has poured metal should find much of this familiar.

Geez, that red dirt out behind the chicken coup might actually be iron ore. But how are you gonna know? Assay it.

Actually, this is a little book with primitive but usable techniques. Being inexpensive, you can study it to see if you find these techniques sufficiently interesting to try. If so, you may want to pick up later, more expensive and complicated books on assaying. (And of course, should there be enough interest, we might reprint one of them...)

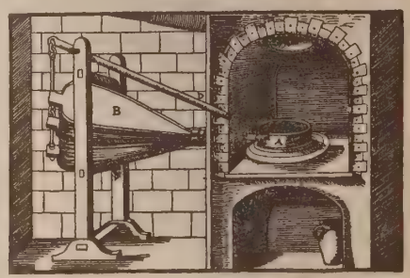
Learn these techniques and imagine yourself as an California assayer in 1850 impressing the ignorant 49ers with your magical knowledge! Nuts.' Forget the 49ers. Just impress your brain-dead neighbors. On the other hand be careful, they're liable to think you're some kind of a terrorist!

Get a copy and learn some long lost how-to. Interesting stuff. 5-1/2 x 8-1/2 booklet 48 pages
No. 23101 $7.95

De Re Metallica

by Agricola
translated by Herbert Hoover

President Herbert Hoover and his wife translated this 1556 mining book from Latin in 1912. And what a book it is!



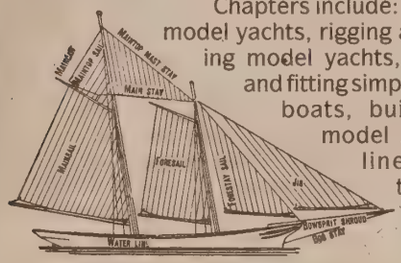
From the text and more than 300 original woodcuts you will learn 16th century mining and refining techniques. You'll learn about finding veins of ore, opening mines, and refining iron, lead, gold, bismuth, antimony, cadmium, cobalt, copper, silver and tin. All the ancient skills are revealed.

Thumbing through this incredible volume is like rediscovering a long lost volume hidden in some remote corner of an abandoned library. It's a little tough to read in places probably because it was written over 400 years ago. But you'll like it. Quite unusual! A true classic! Order a copy! 7 x 11 638 pages paperback.
No. 1132 $29.95

Building Model Boats

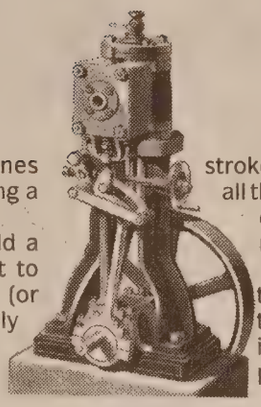
INCLUDING SAILING & STEAM VESSELS

by Paul N Hasluck
reprinted by Lindsay Publications



Another hundred-year-old gem from Hasluck's "Work" series!

Chapters include: building model yachts, rigging and sailing model yachts, making and fitting simple model boats, building a model Atlantic liner, vertical engine for a model launch, model launch engines with reversing gear, and making a showcase for a model boat.



You may only want to build a 18" long wooden model boat to sail in your swimming pool. (or your cess pool if you are totally lacking in good taste...) That can a fun project in itself.

But my main interest in reprinting this particular book lies in the vertical steam engine with its 3/4" bore and 1-3/8" stroke AND the boiler. You get details on the all the parts that go into the engine including data on the patterns and molding techniques needed to pour castings.

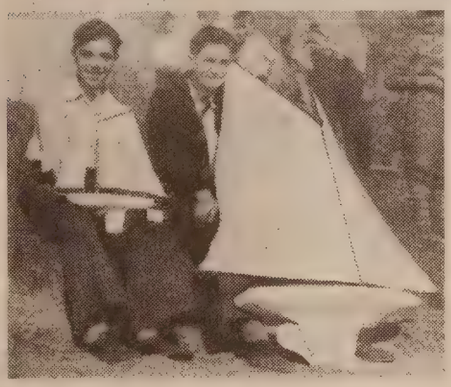
Or build the display case to display those model engines you've built. Better yet, caulk the display case to make it water-tight, and sail IT in your cess pool...

Another excellent book. Get a copy!
5-1/2 x 8-1/2 softcover 160 pages
No. 22601 $9.95

Boats, Airplanes, and Kites

by Armand LaBerge
reprinted by Lindsay Publications

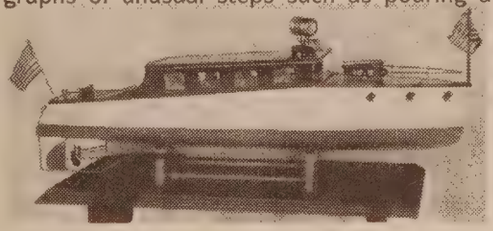
Here you get a manual written by a shop teacher during the Great Depression.

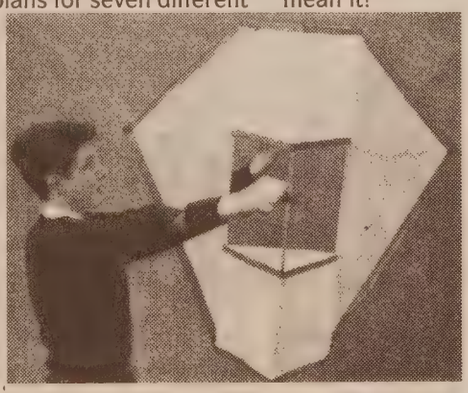


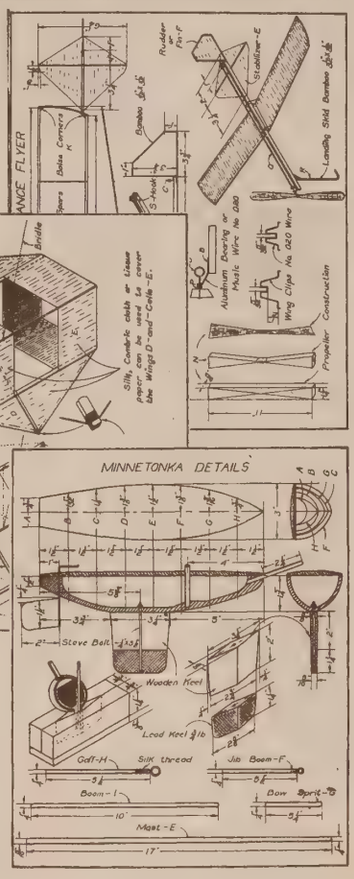
"This book is intended primarily as a practical work of instruction for the typical American boy who delights in the making of model boats, model airplanes, and kites, be it during his spare time, during the long summer months, or in the school shop during the school year. It is also intended for the manual-arts instructor..."

You get plans for six different boats from a 12" sailboat and 38" sailing yacht to a 32" and a 38" speed boat. You get plans for seven different simple airplanes, and five different kites from a French war kite, to a box-kite with wings. Other chapters deal with sailing, kite tournaments, simple motors for boats and more.

You get step-by-step instruction, photographs of unusual steps such as pouring a lead keel weight, and many pages of dimensioned drawings. This is a book aimed at boys, and judging from how worn some of the pages are, it HAS BEEN used.







A great book for boys. And since we all know you never grew up, that means you as well. Geez... scale up one of the boat plans. Next time you threaten to put your mother-in-law on a slow boat to China, she'll know you mean it!

Heavily illustrated. Fun to page through. You don't gotta read very well to enjoy this. A book I knew should be reprinted as soon as I saw it. Order a copy. You'll like it. 8-1/2 x 11 softcover 132 pages
No. 23020 $13.95

EASY-TO-MAKE

Decorative Kites

by Alan & Gill Bridgewater

You get step-by-step instructions for building nine different kites from around the world: European diamond kite (the kind we usually fly in the States), the Japanese Red Devil Swooper, the Oriental Butterfly, the Korean Warrior, The Chinese Yuan, the Guatemalan Sun, traditional Chinese Dragonfly, New England Ghost Kite, the High-Tech box kite, and the Transylvanian ugly-as-your-mother-in-law kite. Well... maybe not the last one. But you do get detailed instructions for building the first nine.

Get a copy and start building. 8-1/2 x 11 booklet 48 pages
No. 5090 $4.95

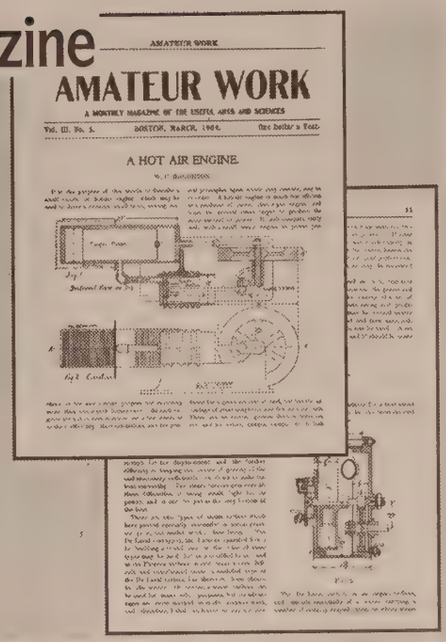
25 Kites That Fly

by Leslie L. Hunt

Learn about kitemaking in general. Learn how to make tailless kites such as a butterfly kit, a yacht kite, English kites, five-point kites, or an elephant kite. Make compound kites such as a square box kite, a military kite, or a cross kite. Chapters on flying hints, accessories, and miscellaneous information.

Dirt cheap! Get a copy. 5 1/2 x 8 1/2 paperback 110 pages
No. 467 $4.95

Amateur Work Magazine



reprinted by Lindsay Publications

These are the best articles from 1904 issues of Amateur Work Magazine, and there's something here for everyone. From acetylene generators and crystal detectors to hand milling machines and steam turbines.

What knocked my socks off were page after page of dimensioned plans for a light gasoline car with an 80" wheel base driven by a two-cylinder engine having a 4" bore and 2" stroke and sliding gear transmission.

Build a dynamo, gas engine spark coils, making electrotypes, soldering, model steamboat and all kind of goodies. All of this is well-illustrated. I doubt that you would build any project from this book as presented. You would want to modify it, and you will need some imagination.

Thumb through this and dream. You should have a copy. You'll enjoy it. Inexpensive! Get one! 8 1/2 x 11 softcover 96 pages

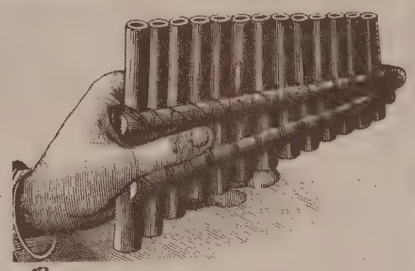
No. 21761 $9.95

Contents

Gas Engine Spark Coils • Bench Micrometer • Model Steam Turbine • Electrical Flash Lamp • Magic Lantern • Simple Balance • Set of Weights • Acetylene Generator • Jolly Balance • Cylinder Printing Press • Thermit • Model Steamboat • Soldering • Oil Immersed Condenser • Wireless Telegraph Receiver • Sensitive Relay • Spectroscope • Hot Air Engine • How to Make Electrotypes • Model Turbine Engine • Attachments for Lathe • Bench Grinder • Light Gasolene Car • Wireless Telegraph Apparatus • 80 Watt Dynamo • Casting in Soft Metals or Alloys • Sensitive Galvanometer • Storage Battery • Hand Milling Machine • Telephone Circuits & Wiring • Rowing Skiff • Bench Trimmer & Saw Block • Tool Sharpening Device

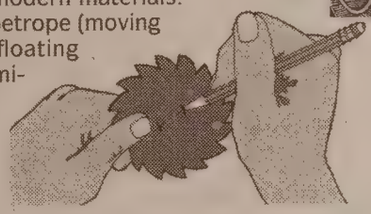
EASY TO MAKE

Old-Fashioned Toys



by Provenzo & Provenzo

Back in the days of iceboxes and woodsheds you made your own toys. Here, the authors will show you how to build those "ancient" toys with modern materials.



You can build a zoetrope (moving picture machine), floating ball, balancing man, microscope, kite-ferry, boomerang, paper wrestlers, buzz saw, flip-book, a magic lantern (slide projector), and much, much more.

Most of these toys are quite simple, but some are more complex and really interesting. These are great table top projects requiring very little equipment. You need no foundry, no milling machine, no oscilloscope – just some initiative and maybe a drill, scissors, a hammer, etc.

So get a copy of this, build a periscope, become a peeping tom, and see how much time elapses before handcuffs magically appear on your wrists! 5-1/2 x 8-1/2 softcover 288 pages 294 illustrations

No. 6150 $8.95

Temperatures Very Low & Very High

by Mark W. Zemansky

How are extremes of temperature produced and measured? How are such extremes of temperature produced? What is the international temperature scale? Also covered: isothermic and adiabatic processes, The Third Law of Thermodynamics, Fusion reactions, Planck's Radiation Law, Energy and entropy, Thermodynamics and negative temperature.

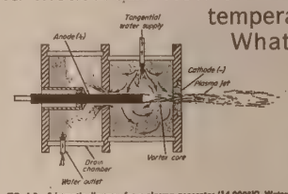


FIG. 4-5 Schematic diagram for a plasma generator (14,000°K). Water stabilized DC arc.

The initial chapters of this volume deal with temperature as it exists in macroscopic physics. The story behind the production and measurement of temperature near absolute zero (-450.67° F) is discussed in the succeeding chapters followed by a review of the production and measurement in the fifty million degree range temperatures.

Perhaps you could build yourself a 50,000 degree plasma torch! What couldn't you cut up with that? Inexpensive good reading. Unusual. By someone who knows. 5-1/2 x 8-1/2 softcover 144 pages

No. 590 $8.95

Silkscreen Printing Production

by J. I. Biegeleisen

Take an old picture frame, cover it with cloth, glue a stencil to it, and you have a primitive silkscreen. You lay it on paper, cardboard, or a tee-shirt, put thick ink on the other side and use a squeegee to force the ink through the stencil. You've printed your design. It's that simple.

Simple, Powerful Process Few People Know About!

You can print signs, shirts, decals, wallpaper and much more without expensive equipment. This book will show you how to do everything from building the simple frame to multi-color printing.

Silkscreen is versatile and low cost. It's a skill you should have. Here's a dirt cheap book that will show you how. 5 1/2 x 8 1/2 softcover 253 pages

No. 424 $8.95

Silkscreen printing is an industrial process you should know about. It's used to print baseball caps, jackets, cardboard cartons, coffee cups, bottles, and handy little words like "PLAY" and "EJECT" on the buttons of your VCR and stereo. Ever wonder how all those wild artistic designs got onto Compact Discs? They were silkscreened! This is a simple but powerful process few people know about. This inexpensive book will reveal the process to you. This is a skill you can put to good use. Moneymaker?!?

Online Ordering

You can order via the internet using your Mastercard or Visa and our secure order form. You can locate it (and lots more) at our site:
http://www.lindsaybks.com
Try the "how to order" link.

When sending email, don't forget to use the code word found on our website!

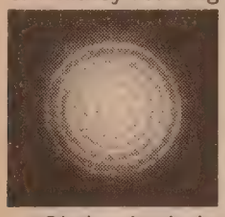
MACHINERY'S INDUSTRIAL SECRETS

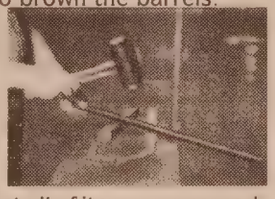
Making Rifle Barrels

articles from Machinery Magazine
reprinted by Lindsay Publications Inc

More than 90 different operations went into manufacturing barrels for the British Lee-Enfield rifle during WWI. The first third of this booklet shows in detail how the Brits did it: the machines, techniques, and tricks necessary to drill a long, deep, perfectly straight hole into very hard steel, straighten the tube if necessary and then cut rifling grooves. It's heavily illustrated with photos (not great quality unfortunately), and drawings revealing the drills, reamers, laps, relieving cutters, thread millers and the multitude of other tools used.

Then it's "Drilling, Reaming and Straightening Rifle Barrels" as it was done in another factory. Again, it's wall-to-wall illustrations of barrel drilling machines, jigs for sharpening the special drill bit, Pratt & Whitney reaming machines, straightening techniques, and so on, all the way to polishing the barrel. You even get formulas for solutions to brown the barrels.





Finally you get two short illustrated articles, "Machining Rifling Bars on the Bench Lathe", and "Drilling a Long Blind Hole".

Obviously, during WWI there were many articles on manufacturing ordnance, but almost all of it was concerned with speeding up production. These four articles are the best for us since they cover how-to.

Machining a rifle barrel is quite an achievement. Here's how it was done almost a century ago on relatively simple equipment. Get a copy! 5-1/2 x 8-1/2 booklet 63 pages 75 illustrations

No. 22806 $8.95

Backyard Ballistics

by William Gurstelle

Go ahead! Endanger your health! Physical, that is. We all know your mental health deteriorated beyond hope years ago. And when you build one of these instruments of destruction, everyone is going to know just how crazy you are! But do I care? Hardly...

Build a potato cannon out of PVC pipe. This ain't quite as cool as the sewer pipe cannon I invented a couple of years back that shot manure all over my neighbor's houses, but this comes close.

Or build a Cincinnati Fire Kite out of newspapers and burn the city down. Make rockets out of matches or out of PVC and soda bottles. Build a mortar that launches tennis balls.

Build Newton's explosive petard, again out of PVC. And there's the hot air balloon you can make from a dry cleaner's bag. Or the ballistic pendulum.

But I like the carbide cannon. It doesn't really fire any projectile, but it will make such a loud noise that it's guaranteed to make your neighbors drop a load in their pants! And that's lot's of fun to watch as long as you have a clothespin on your nose...

Crazy book for little boys who never grew up and still want to get into trouble. Off beat. Sumthin' to have. Get one! 7x10 softcover 169 pages

No. 5083 $16.95

Warning! These machines can be very dangerous!

Fire-Arms Manufacture 1880

U.S. Dept Interior, Census Office
reprinted by Lindsay Publications

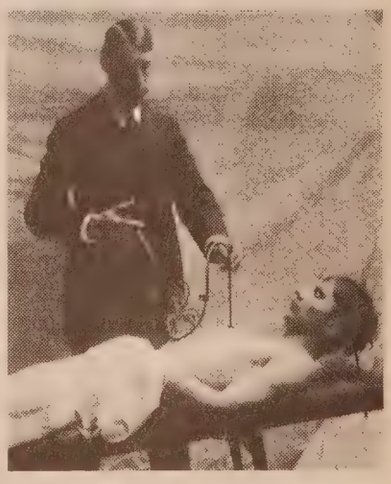
Here, you get an illustrated history of the mass production of firearms from 1814 when Col. North started producing interchangeable pistol locks at Middletown, CT to the "recent" improvements of 1880.

You learn how a 9" billet was bored and then forged into a rifle barrel. You learn about different methods of rifling the barrel. You can image the proving shed where the new barrel was overcharged with powder and tested to see if it would explode. You'll find that cast steel was a rare and novel metal when arms manufacture began, but you'll see it was commonly used by 1880. You'll meet the men whose genius created gun stock duplicating machines. Learn about the details of polishing and finishing. You even get a brief report on ammunition manufacture.

This is a fascinating history of technology written a hundred years ago by people who were a part of the early history. Even Eli Whitney, himself, was interviewed for this report. Interesting book. Low cost. Unusual interesting reading. Great wood cuts. Consider this carefully.
5 1/2 x 8 1/2 softcover 80 pages
No. 20846 $6.95

Preserving the Dead

reprinted by Lindsay Publications



Imagine the admiration and accolades you'll receive at the next party you attend when you casually announce that your new hobby is embalming corpses! Imagine their wonderment when you describe how a real body cavity search is performed! And imagine how proud you'll be to announce that you no longer drink highlands single-malt scotch, that you've switch to formaldehyde and tonic!

Here you get the best parts of two turn-of-the-century undertaking books. We threw out the countless pages of anatomy that an embalmer certainly must know and retained only the "goodies".

You get fascinating history on corpse preservation from the Egyptians until these books were written in 1900 and 1908. Then you learn about the blood and how to extract it from veins, arteries, and heart.

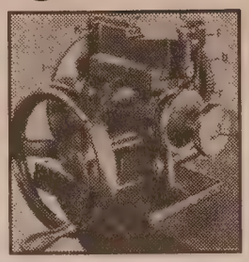
Next comes the fun. You hook your dearly departed up the 500 gpm pump and shoot him full of embalming fluid. You'll learn what arteries to use, and what cavities to fill. You'll be told where to make the incisions, how to push fluid up his nose, and even where to pack the m-80s... well, maybe not.

The best part, I think is not the embalming process, but the funeral traditions. Undertakers are advised to wear clean clothes to a funeral (I guess the living should smell better than the dead), not to drink whiskey before the service (enough of the mourners will be doing that), and on how to keep different fraternities attending the rites in the deceased's home from getting into fist fights. (Lindsay funerals are so bizarre the undertaker wears a striped shirt and has a whistle in his mouth...)

You aint gonna find this book at the local newstand. Give one of these to your mother-in-law. Leave one in a church pew. Flash one of these at the funeral director next time there's a death in the family and tell him to come down on his rates or you'll do the job yourself (and do a job on him...).

Good book. Off the wall. Great reading. Great gift. If you try the techniques presented, I don't want to know about it. I just want you to order a copy and enjoy it.
5 1/2 x 8 1/2 paper 224 pages
No. 4244 $9.95

Graduating Engraving & Etching



MACHINERY'S BLUE BOOKS

reprinted by Lindsay Publications

This well illustrated 1921 book reveals secrets of cutting lines into metal and plastic with routing machines.

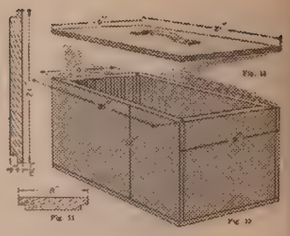
Chapters include graduating machines and their use, engraving machines and methods and etching and etching fluids. Within these chapters you'll see power-driven linear engraving engines, circular engines, a circular graduating machine used to put scales on astronomical instruments, machines that graduate numerous rules simultaneously, graduating with a pantograph and even a fixture for graduating in a milling machine.

You'll see machines (cross-section drawings included) that engrave with a tiny precision router mounted on a pantograph. And you'll see the products of their work: dies for date stamps, radio dials, and more.

Small, well illustrated, low cost. Get a copy. (And I won't take NO for answer.) 5-1/2 x 8 1/2 softcover 60 pages

No. 21788 $6.95

Electroplating



by Henry C. Reetz

reprinted by Lindsay Publications

Try electroplating! It's a useful addition to your shop skills. Here's a simple, inexpensive, well-illustrated little book that will show you exactly what you need to know to get started.

Originally published by Popular Mechanics magazine in 1911, Electroplating is brief, easy-to-read, and useful. You can be sure about that. About the only information that is really dated concerns power supplies.

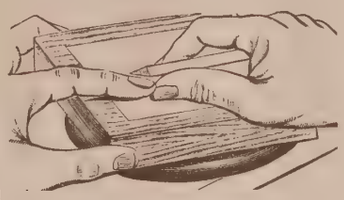
Chapters include introduction, electrical equipment, shop equipment, cleaning goods before plating, copperplating, nickelplating, silverplating, goldplating, miscellaneous, first aid, and business suggestions.

You'll learn how to clean parts, polish them, mix up solutions, make tanks, and all the essentials to get going. This could very well be an easy to way to try plating. If you enjoy it, then you can launch into "heavier" texts loaded with chemistry and industrial secrets.

A great little book. Worth having. Order a copy. 5 1/2 x 8 1/2 softcover back 99 pages

No. 20080 $7.95

Engraving Metals



by Paul N Hasluck

reprinted by Lindsay Publications

Learn about engraver's tools and their uses, elementary exercises in engraving, engraving plate and precious metals, engraving monograms, engraving steel for transfer processes, engraving name-plates, engraving coffin-plates, chasing metals and etching metals.

You get a nicely illustrated book of practical how-to just like the other great books in this series.

So go ahead, engrave me a name plate for my office door (just keep it clean). Or better yet, a beautiful name plate for my coffin (the more outrageous the better! —makes for a lively wake). Or when you start printing those counterfeit hundred dollar bills, send me a handful!

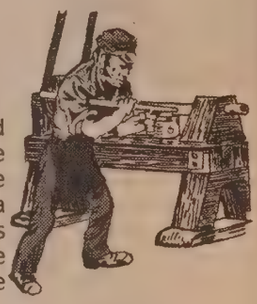
Great little book worth having. Get one! 5 1/2 x 8 1/2 softcover 160 pages

No. 22547 $9.95

Turning Metal

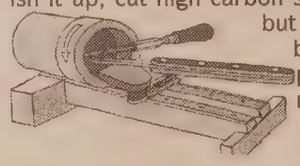
ON A SIMPLE LATHE

by John F. Maloy



Maloy first saw freehand turning performed by an expert blacksmith. Nineteen years since then, Maloy has used the technique to make steam engines, small airplane engines, and a muzzle loading barrel rifling machine. He has also managed to bore a hole 44" deep free hand that was off center by only .010" at the opposite end!

Maloy will show you how to make a cutting tool, temper it with a propane torch, sharpen it, make the first pass, the second pass, finish it up, cut high carbon steel, make additional gravers. Illustrated but less well described are constructions of a bell chuck, turn a finned cylinder for a 3/4" pipe tee engine. Surprising accuracy! Great reading.



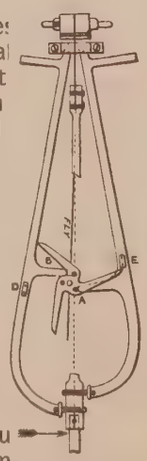
5 1/2 x 8 1/2 booklet 24 pages.

No. 884 $4.00

507 Mechanical Movements

by Henry T. Brown

reprinted by Lindsay Publications



Originally copyrighted in 1868, this 1893 printing carries a complete title of "Five hundred and seven mechanical movements embracing all those which are most important in dynamics, hydraulics, hydrostatics, pneumatics, steam engines, mill and other gearing, presses, horology, and miscellaneous machinery; and including many movements never before published and several which have only recently come into use."

You'll find each left-hand page carries nine illustrations, and each right-hand page presents brief descriptions of their operation. Some of the movements are trivial, but others are quite unusual and interesting. In some cases you'll find that these movements were popular at one time, but are no longer used. Discover Fairbairns' bailing-scoop, Anderson's gyroscopic steam engine governor, or Clayton's sliding journal-box.

If you design machines, this can be very useful to you as practical how-to info. Design and build table-top demonstrations of these movements. Great project ideas! At the very least you'll find this a great book to browse through on a rainy afternoon. Very interesting. 6x7 softcover 128 pages

No. 4252 $7.95

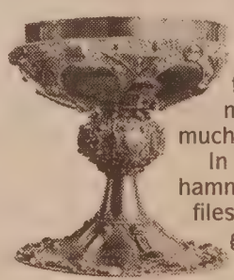
On Divers Art

by Theophilius

translated by Howthorne & Smith

Theophilus probably wrote this in Latin on parchment about 1120, long before the printing press.

You learn the tricks and techniques of painting, working glass, and working metal. You get details on mixing pigments for various hues, working gold and tin leaf, applying leaf to books, making ink, making glass, details of the furnace, the composition, spreading out glass sheets, making long-neck flasks, coloring glass, gutting, annealing, glass molds of iron, assembling windows and much, much more.



In metalworking you learn about anvils, bellows, hammers, engraving tools, punches, files, hardening files, crucible for gold and silver, milling gold amalgam, setting gems and pearls, refining copper, separating gold from silver and copper, and much more.

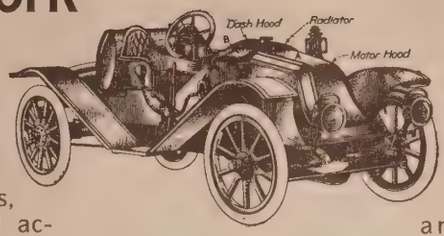
Each section is short, but gives the essential details. The original illustrations have been reproduced. Also included are photos of typical work from 1100's. Lost secrets! Reasonably priced. 6 x 9 softcover 45 illustrations. 216 pages.

No. 160 $14.95

Practical Sheet Metal Work

AUTOMOBILE AND SHEET METAL BOATS

by William Neubecker
reprinted by Lindsay Publications



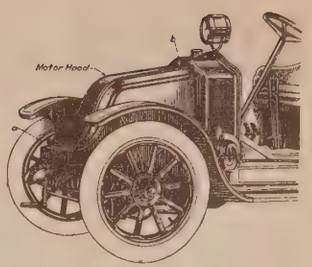


Fig. 115. Perspective View of a French Type of Motor Hood

What a book! Especially if you want to build an automobile. No, not a modern streamlined sports car. I'm talking about those early chain drive beasts that competed in around-the-world races off road back before World War One... machines that might have appeared in that old movie "The Great Race."

And this is not about engines or running gear. This is about taking a flat sheet of metal and creating fenders, hoods, dashboards, curved seats and all the fancy stuff.

Chapters include constructing the bodies and panels, patterns for bodies and dash hoods, developing and constructing seats and doors, motor hoods, guards and fenders, separate dash hoods, tanks and accessories, and boat patterns. (I guess making boats out of sheet metal is easier than pouring them out of cast iron!)

This is for the 1912 apprentice who wanted to get into the exploding automobile industry. You get patterns for making rumble seats, racer seats, French motor hoods, crimping techniques, rolling machinery and all the details.

If there is any complaint I have, it's that this sheet metal attaches to a wood frame which is not described. But wood working is a common art these days. Fabricating sheet metal into these forms is a lost art.

And you get plans and details on building several types of small boats including a canoe and 14' rowboat.

This is an incredible book for the modeler, the auto restorer, or someone who wants to build a steam automobile and put it in a period body. For the rest of us, it's valuable in that it shows us how the sheet metal was worked. The lessons learned can be applied to other problems.

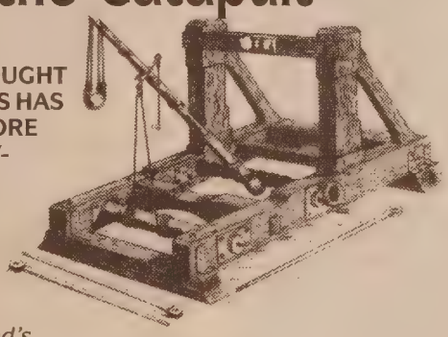
Rare info. Heavily illustrated. Wall-to-wall how-to. It doesn't get much better than this. Consider it carefully. 8-1/2 x 11 softcover 148 pages

No. 22563 $13.95

The Art of the Catapult

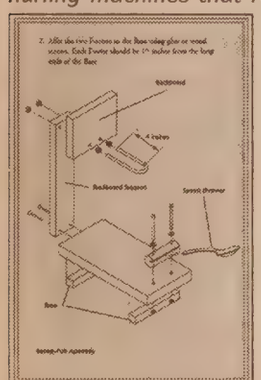
by William Gurstelle

THAT CRAZY THAT BROUGHT US BACKYARD BALLISTICS HAS BROUGHT US EVEN MORE DESTRUCTION AND MAYHEM.

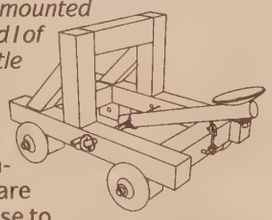


From the backcover:

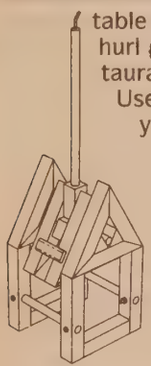
"With some scrap wood, rope, hammer, nails and this book, build seven historic catapults including Ludgar the War Wolf, God's Stone Thrower, Cabulus, and the Wild Donkey – simple yet sophisticated hurling machines that rely on the fundamentals of math and physics using levers, force, torsion, tension, and traction.



Through these exciting projects, the colorful history of siege warfare comes to life – the stories of Alexander the Great and the battle of Tyre; Saladin, Richard the Lionhearted, and the Third Crusade; pirate-turned-soldier John Crabbe and his ship-mounted catapults; and Edward I of England and his battle against the Scots at Stirling Castle..."



Some of these devices like the catapult of Alexander are table top devices you can build and use to hurl grapes at people on the other side of the table (or restaurant.) Others require five foot long sections of PVC tubing. Use it to hurl water-balloons (or better yet, road-kill) onto your neighbor's front porch. The trebuchet for instance uses a 13" long throwing arm.



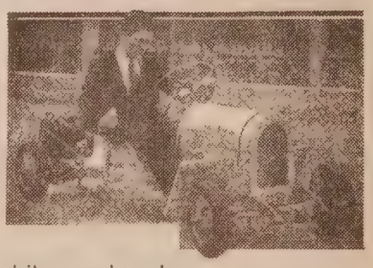
Yah, I know. This stuff is too small. If you can't throw a piano across town, you don't want to mess with it. I've got news for you, Jack. These machines are dangerous enough. Learn how to build and use one of these weapons of terror before you build the big one (and after you get out of prison.)

Another strange book on do-it-yourself weapons. Just enough info to get yourself in trouble. You've been warned. Now go have fun! 7x10 softcover 172 pages

No. 5108 $14.95

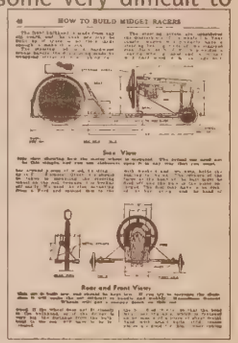
How to Build Midget Racers

originally from Johnson Smith & Co
reprinted by Lindsay Publications

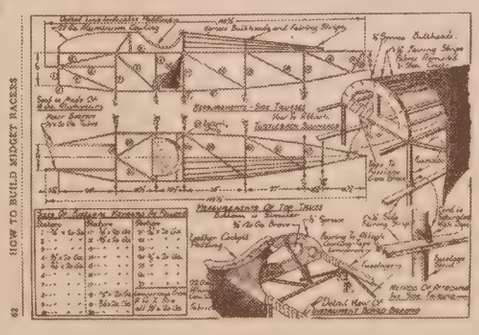


Back in the depths of the Great Depression, Johnson Smith of Detroit offered this for something like 12¢. But today it's a very hard book to find. Apparently Johnson Smith contracted a printer to reprint articles from earlier magazines on building midget racers, powered bicycles, midget mobiles, and push-mobiles with plans for a small plane thrown in for good measure. But it was printed cheaply on poor paper.

The photographs on the yellowed, brittle paper are "muddy", some very difficult to make out. Plans are faded out in places, indistinct in others. After some scanning tests and computer cleaning techniques, the reprint is actually much more readable than the original.



Having said that, it's a fun book. If you think you're going to find detailed plans showing you where to put every nut and bolt, you're a dreamer. But if you're like the majority of builders who read this catalog, you'll find ideas that you can run with. You'll have to. The engines pictured from seventy years ago are going to be hard to find. Take the ideas and build the midget racer of your dreams!



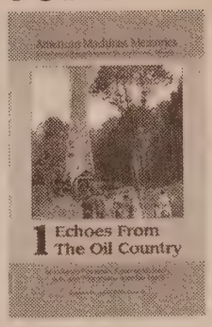
This is for boys who want to build their own small cars. And since people tell me that you never grew up, this book is for YOU! Tough reading in places, much easier in others. Worth having nonetheless. Fascinating content. For building, dreaming or reminiscing. Get a copy. 5-1/2 x 8-1/2 softcover 64 pages

No. 22903 $8.95

AMERICAN MACHINIST MEMORIES

Echoes from the Oil Country - Vol 1

July 1900 thru March 01
by W. Osborne
reprinted by Lindsay Publications Inc



Outrageous tales from Osborne starting with his first article just as it appeared in July 1900 American Machinist Magazine.

You discover how Osborne got to Petroleum Center in western Pennsylvania: oil country. He'll tell you about meeting the owner, the room he stayed in, and the machinery all over the shop floor. Then it's out to repair a 9x12 steam engine pumping oil out on a "lease", details of the work of the joint turner, crack pot inventors, and more.

You have to let Osborne "tell" you about his ride in a buggy sitting on top of twelve cans each filled with 26 pounds of nitroglycerine! They were on their way to shoot a well. Osborne will tell you what they did after the first attempt was a dud. And these weren't no Fourth-of-July fireworks!

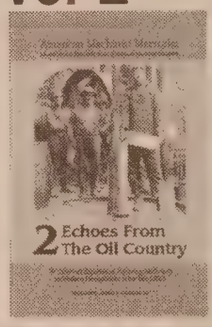
And the ol' man talks about shrink fits, why the mill engine wouldn't work, and about his being sure he could design a better steam engine than he could buy, and the lessons he learned from the experience.

Great Osborne tales. From the beginning. The very first of a long run of articles. Great reading. There's a copy waiting here for you.
5-1/2 x 8-1/2 softcover 61 pages
No. 22784 $7.95

AMERICAN MACHINIST MEMORIES

Echoes from the Oil Country - Vol 2

April thru December 1901
by W Osborne
reprinted by Lindsay Publications



More wild stories from Osborne, machine shop foreman, back when a machinist was someone who repaired machines.

Stories of repairing governors, hiring good men, fixing pumps and eccentrics (engines not oil men), bad Babbitt metal, running an old worn out lathe, and more.

My favorite would have to be sending Charley out to the repair the steam engine at the nitroglycerine factory. Charley, convinced the factory would explode at any instant, was so nervous it's a wonder he didn't wet his pants!

And much more. Great reading. 5-1/2 x 8-1/2 softcover 64 pages
No. 22830 $7.95

A man who has never had any fun with a direct-acting steam pump, or had one of them have fun with him, has not had all the variety there is in life. Almost any one of these pumps can do more different things, and do the same thing in more different ways, than any other piece of machinery I ever ran across. If a man's head swells up so that he begins to think he knows it all, it can furnish the experience that will help to reduce it....

Brown was evidently in a hurry, and that pump was about 400 feet higher up than we were, and the day was very warm.

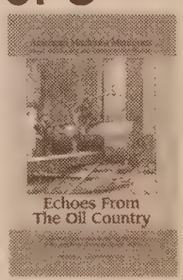
I went up with him, and to see how she was, I turned on the steam. The pump started right away and took hold of the oil in good shape... I put things together and started it up and returned to the shop.

Brown was there almost as soon as I was and reported things at a standstill. I climbed the hill again, turned on steam and the pump started as before. Brown did some very emphatic cussing and acted as though he wished it hadn't. Again I tore everything apart and did not find any trouble, and when assembled she started as before. I began to question Brown about the source and quantity of his whiskey, but he declared he had sworn off months before.

AMERICAN MACHINIST MEMORIES

Echoes from the Oil Country - Vol 3

January 02 thru June 02
by W Osborne



Read about Osborne being sent out to a hotel to help an engineer who couldn't figure out why the steam pump would not draw water from the lake. How he helped the boneheads at the brewery when they incorrectly hooked up a newfangled bottlewasher to their overhead line shaft and proceeded to break scores of bottles.

You have to read about the amazing trip to the sawmill through ice and snow to repair the steam engine. He babbitted the crosshead in thunder and lightning with snow coming down so hard he thought it was midnight.

You also get a tale from a reader about John Peatie who retired from repairing steamboats in Chicago in the 1860's, and moved to a farm in Wisconsin. When the cast-iron bullwheel broke on the threshing machine, the old man searched for and found some sand for a mold, located clay near the creek to line a homemade cupola made from well brick. He blew it with a fanning mill powered by a horse on a thread mill. And the next day a new cast-iron bullwheel was ready. Talk about ingenuity!

I liked the story about how Osborne found that a vibrating line shaft was 4" low at one end. So did the owner fix the hangers? No! He sent his workers out with jacks and they jacked the corner of the building up 4" to bring the shaft in line! Even Osborne didn't understand that!

Great reading. Educational. Inspiring. It reads like Mark Twain. Funny. Crazy. Illustrated with early photographs of Oil Country from my private collection. I think you'll like it. Get one.
5-1/2 x 8-1/2 softcover 93 pages
No. 22687 $8.95

Shortly after the first oil well was drilled in Western Pennsylvania in 1859, there was a rush to secure leases and dig more wells. Wild and wooly boom towns like Pitthole and Oil City sprung up over night. The hills were covered with crude wooden derricks powered by jury-rigged boilers and primitive steam engines. And scattered among the hills were numerous sawmills, tanneries, breweries and other small industries.

W. Osborne was machinist in the late 1800's when a machinist was much more than someone who stood behind a lathe or milling machine. Osborne was a man who fixed machines, and these articles published in the earliest years of the 20th century recall some of the crazy experiences he encountered.

His stories are told in a conversational style that readers a hundred years ago raved about (and Lindsay customers are raving about today.) It could easily have been the most popular column in the magazine at the time. One reader of American Machinist magazine commented that Osborne's "Echoes" was the first article he would read each week and was disappointed when an article did not appear.

If you haven't read these fun stories, you've really missed something.

"I am sending an engine in that I want a little work done on. There isn't much wrong with it, only it has been standing still for some time and I suppose the valve is stuck fast. It is one of those valves, in two parts, that slide together with one part pushing on the steam-chest cover, and they will stick sometimes when they get rusty...

"Don't put a bit of unnecessary expense in it, as I had to sell it cheap to sell at all...."

Those were the directions we received, and in a few hours the engine was on the floor being torn apart. It was rusty, very rusty, and...

"Boiler, boiler; yes likely, isn't it? That boiler has run an engine for years that would do more work than six of this kind you fix. Ten boilers wouldn't furnish steam enough to run it. Don't think for a minute, young man, that I don't know anything. My nine-year-old boy could tell you more about machinery in a minute than you know altogether, and I don't think you are honest enough to learn."

Really I wanted to hit him. In all my experience with all sorts of people, I never felt more like fighting than I did then. He was little and the gray was streaked through his hair, so fighting was out of the question, and I walked away leaving him and Mr. Smith to settle it as best they could.

AMERICAN MACHINIST MEMORIES

Echoes from the Oil Country – Vol 4

July 1902 - November 1903
by W. Osborne

This is the biggest and best collection yet. Biggest: almost twice the size of the first three collections. Best: In an eight part series complete with photographs he describes the process in detail of forming a partnership with several men, getting a lease, and hiring crews to erect an oil derrick and drill for oil.

And because he provides photos of the boilers, engines, sand reel, derrick, tools, nitroglycerin shack and the wagon, and more, you'll swear you standing right there with him!

Hank was to be ready at 3 o'clock, and Hall drove up soon after I got there. He had 120 quarts [of nitroglycerine] with him, under and behind the seat, and the shells and anchors were on the rack at the side of the wagon.... A line attached to a small pulley was tied on to the tool in such a position as to bring the pulley over the hole. A reel was bolted to the flywheel of the engine so that it was roughly central and the line from it was brought forward and run through the pulley. On the end of the line was a hook made...

In my opinion, these eight articles alone are worth the price of the book.

But you get many more. Some are the usual bizarre tales of repairing steam engines with cylinders lubricated with tallow, of nut-case inventors who were going to get rich, fish sucked into the water pump, the steam engine that blew up because it froze, and much more. Other stories are lectures to machinists about how the grass is not always greener on the other side of the fence, and how to improve yourself so that you are more valuable to your employer.

More great articles from Will Osborne who, in 1902 and 1903, was writing one of the most popular columns ever to appear in AMERICAN MACHINIST MAGAZINE.

Fun reading. Get a copy. 5-1/2 x 8-1/2 softcover 175 pages
No. 22881 $11.95

AMERICAN MACHINIST MEMORIES

Echoes from the Oil Country - Vol 5

October 1903 - January 1905
by W. Osborne

More tales from Osborne. Same interesting lessons and experiences that make us appreciate what "the ol' guys" could do with simple tools, lots of hard work, and the ever-essential imagination.

You get stories with titles like– a drilling wrinkle for the lathe, misled by reversing work, trouble with brass castings, a general utility boring bar holder, laying out an oil derrick, moving to the new shop, melting gray iron chips in the cupola, patternmaking in the small shop, reducing friction, introducing gas engines into oil country, a visit to the machinery hall at the St Louis Exhibition of 1904, and more.

Imagine you were saddled with the responsibility of moving lathes without damage from the second story of a large frame building to a new building half a mile away, using jacks and timbers, horse and buggy, and unpaved roads! Osborne pulled it off.

Tune into the arguments and discussion by Osborne and others about the experiments of remelting the enormous piles of gray iron chips created by machine tools. Only a couple methods could be used successfully, otherwise the new iron would be difficult, if not impossible, to machine.

Get Osborne's humorous observations on the hicks in the sticks when faced with getting a gas engine running and keeping it running. The ol' one-lungers could be a bit more cantankerous than our modern engines, but some oil men looked down on them as some kind of devil machine. Osborne learned 'em otherwise.

During this era Osborne was elevated to shop boss, and as a result, wrote many articles on business management that had little to do with machinery. The dates and titles of those articles are listed here, but not reprinted.

...There goes the telephone.

"Hello! Yes, I'm the man. You say your engine will not run. Oh, it will run but is not running as it should. I see now, and what is the matter? You don't know, eh, and you want me to tell you. All right, you just listen carefully to what I say. You know the place where you can change the setting of the valves, do you not? Well, all right, you go down to the engine and loosen up the lock-nut and move the valve a little."

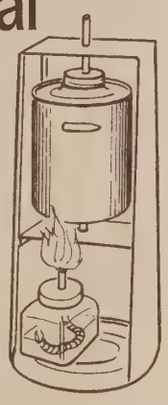
Instantly comes back the question, "Which way shall I move it?" and I haven't seen his engine and haven't the least idea where he may have the valve set at the present time; but I am going to get him out of trouble just the same, if he only knows enough to follow my directions as I give them, and doesn't know enough to hunt up reasons for not doing as I tell him to do because I don't know anything about his particular case...

More good stuff from ol' man Osborne. Fun reading. Get a copy. 5-1/2 x 8-1/2 softcover 64-pages
No. 22989 $7.95

HOW TO USE

Tin Can Metal

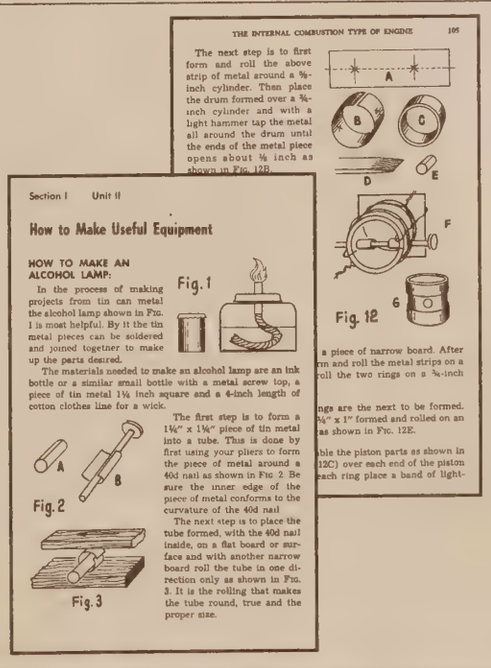
IN SCIENCE PROJECTS



by Edward J Skibness

Skibness was a classroom teacher for forty-one years having taught industrial arts, science, and for the last thirty years, physics. This book reflects his philosophy that one way to motivate students was to show them how much fun it was to build significant projects from inexpensive scrap metal.

Chapters include: introduction, processes and techniques, how to make useful equipment, how to make a bending jig, how to make triangles for marking, how to make a mandrel, Hero's jet engine, the walking beam engine, crosshead engine, and a model of an internal combustion engine.



THE INTERNAL COMBUSTION TYPE OF ENGINE 105

The next step is to first form and roll the above strip of metal around a ⅝-inch cylinder. Then place the drum formed over a ¾-inch cylinder and with a light hammer tap the metal all around the drum until the ends of the metal piece opens about ⅛ inch as shown in Fig. 12B.

Fig. 12

Section I Unit II

How to Make Useful Equipment

HOW TO MAKE AN ALCOHOL LAMP:

In the process of making projects from tin can metal the alcohol lamp shown in Fig. 1 is most helpful. By it the tin metal pieces can be soldered and joined together to make up the parts desired.

Fig. 1

The materials needed to make an alcohol lamp are an ink bottle or a similar small bottle with a metal screw top, a piece of tin metal 1¼ inch square and a 4-inch length of cotton clothes line for a wick.

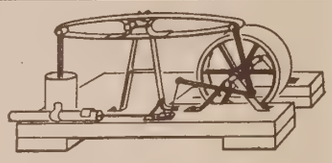
The first step is to form a 1¼" x 1¼" piece of tin metal into a tube. This is done by first using your pliers to form the piece of metal around a 40d nail as shown in Fig. 2. Be sure the inner edge of the piece of metal conforms to the curvature of the 40d nail.

Fig. 2

The next step is to place the tube formed, with the 40d nail inside, on a flat board or surface and with another narrow board roll the tube in one direction only as shown in Fig. 3. It is the rolling that makes the tube round, true and the proper size.

Fig. 3

The author will show you with wall-to-wall illustrations how to cut up a tin can for metal, flatten it, bend it, form tubes and cylinders, punch it, make an alcohol lamp for soldering, and more.



In Section II he shows the student (that's you. remember?) how to make several small engines, only one of which truly "runs": Hero's engine. The other engines are moving models. (Maybe you're sharp enough to figure out how to make the parts tight fitting enough that engines could be run on compressed air. Don't know if it can be done.)

This is great material for the tinkerer, artist, or scavenger who takes pride in building something out of nothing. (and who doesn't?).

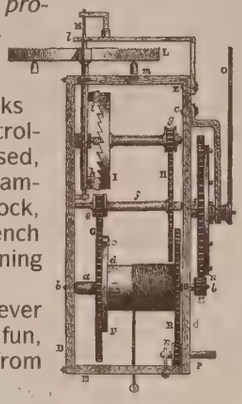
Great little book. Heavily illustrated. Targeted toward high school students. I'm sure you can handle it. Get a copy. 5-1/2 x 8-1/2 softcover 120 pages
No. 22636 $9.95

The Clock Jobber's Handybook

by Paul N Hasluck
reprinted by Lindsay Publications

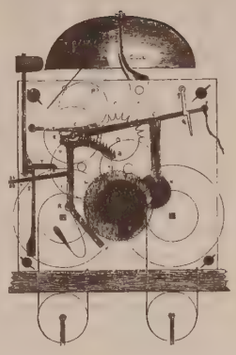
Another hundred-year-old-plus gem from Hasluck's "Work" series!

"A practical manual on cleaning, repairing and adjusting: embracing information on the tools, materials appliances and processes employed in clockwork. –with upwards of one hundred illustrations."



Chapters include various clocks described, pendulums: the controllers, escapements commonly used, deWyck's and German clocks, examining and cleaning an eight-day clock, repairing an eight-day clock, French timepieces, and lathes and turning appliances.

Is this the greatest clock book ever written? Far from it. But it IS a fun, detailed, informative little book from 1889. Worth having.



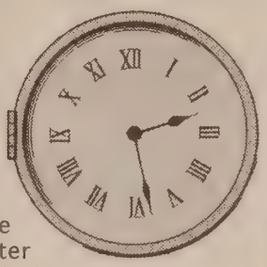
I keep promising myself that one of these days I'll build a gear cutter and build a wooden verge-and-foliot clock (deWyck) like those out of the Black Forest 400 years ago. One of these days. Another excellent book by PN Hasluck. His little books never fail to be interesting. But you always wish good books were bigger. This is one of them. Great ideas. Get a copy!

5-1/2 x 8-1/2 softcover 160 pages
No. 22709 $9.95

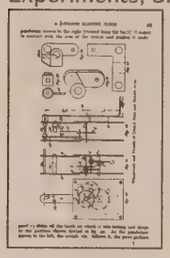
Electric Clocks & Chimes

articles from Model Engineer
reprinted by Lindsay Publications

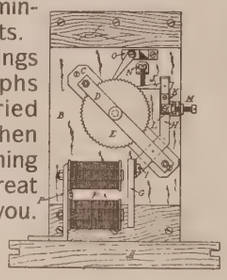
Check out this small book of technical articles collected from the pages of Model Engineer magazine more than 75 years ago. You get "a practical handbook giving complete instructions for the making of successful electrical timepieces, synchronized clock systems, and chiming mechanism."



This is part of a series that includes a few titles that we have reprinted: Simple Science Experiments, Simple Working Electrical Models, the Wimshurst Machine, Windmotors and others.



Here you'll get details on the various kinds of electric clocks, simple self-contained electric clock, a pendulum clock, a 3/4-second electric clock made from inexpensive materials, converting a grandfather clock to impulse drive, the synchronome system, a new design for an electrical drive clock, and a master chiming gear for half-minute electric time circuits.

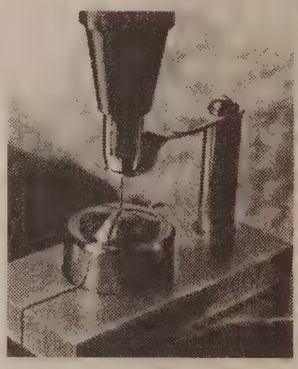


You get lots of drawings and many photographs of projects being tried back about 1920 when electricity was becoming the high-tech craze. Great stuff for clock buffs like you. Interesting insights and ideas. Get a copy! 5-1/2 x 8-1/2 softcover 159 pages
No. 22865 $9.95

ART OF

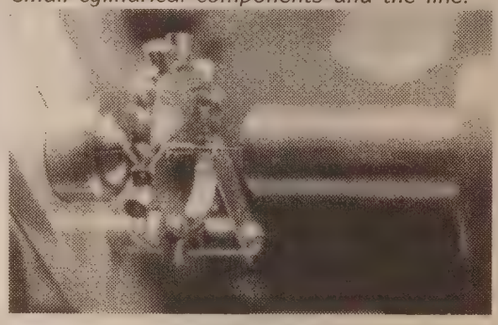
Repivoting Watch Wheels & Pinions

by Robert Porter



You get a inexpensive, but high quality booklet describing the repivoting watch wheels. That means positioning the gears so that the gear teeth mesh properly.

I don't build watches nor do I repair them, but what is so interesting here is that Porter will show you how make the tiny drills needed for repivoting. Most of the booklet covers *"how to make two new lathe attachments for making micro-drills, small cylindrical components and the like."*



And when he says micro-drills, he means it. The attachments described have cut drills less that .004" in diameter!

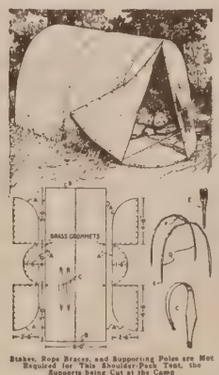
More rare, useful information. Loaded with photos and drawings. Good stuff at a low price. If you have a lathe, I think you're foolish not have a copy of this. Fascinating stuff. 5-1/2 x 8-1/2 booklet 20 pages
No. 1547 $5.95

Boy Mechanic - Vol 3

by H H Windsor
reprinted by Lindsay Publications

∞ Only 800 things for boys to do in this volume. Just 800...

This third volume seems to be somewhat more outdoors oriented than the first two volumes. You get ideas on building a coasting toboggan, sail driven ice boat, instructions on skiing, casting for game fish, on building a canoe, a house boat, a portable fishing boat, tricks of camping out and much more.



You'll find great ideas on building a boy's homemade motor car, mission furniture, a searchlight, a dragon kite, a model mono-plane, a circular swing, a merry-go-round, a aerial cableway, a miniature fighting tank, a machine gun, a small working pile driver, homemade electric model train set, plans for a variety of photographic equipment, a miniature illuminating gas plant, a hydraulic turbine, and much, much more.

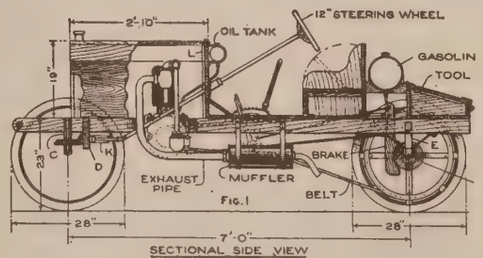
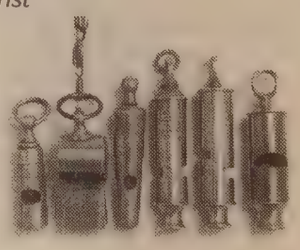


FIG. 1
SECTIONAL SIDE VIEW

More of the same entertaining illustrated how-to stories. From 1919! Your copy is waiting. Just say the word. 5 1/2 x 8 1/2 softcover 476 pages
No. 21796 $19.95

Whistles

by Martyn Gilchrist



Check out this heavily illustrated British booklet published for the whistle collector. You'll see countless unusual whistles fabricated from porcelain, wood and, of course, metal (usually brass).

Great ideas for a guy with a small lathe. This could be the start of a small but fascinating turning project for the metal and woodworker, or the guy who wants to deafen his neighbors and drive all the neighborhood dogs bonkers.

Heavily illustrated. 8-1/4 x 6 booklet 40 pages
No. 6138 $4.95

A Day at the Factory

ARTICLES FROM THE PENNY MAGAZINE

reprinted by Lindsay Publications

In 1832 the Penny Magazine, reputedly the world's first illustrated weekly magazine, was launched. By 1844 when these articles were published, the magazine was a wild success, proving that people were hungry for knowledge.

The Industrial Revolution was in full swing in the UK, and the new technologies were mysteries to most of the population. Each month, a special supplement took readers into a factory to examine British heavy industry. Since photography was only five years old, and the only form available was the daguerreotype or the salted paper process of Fox-Talbot, artists were dispatched to make sketches that were then converted into wood engravings to educate readers.

Now you can hop into your time machine and visit early factories. Watch as castiron is turned into wrought iron. Visit the steel factories in Sheffield and watch carbon being added to wrought iron to produce what was thought to be the world's finest crucible steel (a rare, expensive metal). Watch craftsmen make files by accurately cutting thousands of grooves with hammer and chisel at incredible speed. See saws, scissors, and pocket-knives being made. Learn how the crucibles for steel making were fabricated. See the wooden and iron forge hammers used to work the iron into bars and eventually into sheets.

Visit the chemical factory near Newcastle-on-Tyne and see the incredible kilns and retorts used to make sulphuric acid, sodium carbonate and calcium sulphate, hydrochloric acid, bleaching powder, alum and more.

Visit the glass factory and see how crown glass was created by spinning a cylinder into a disc and allowing it to cool. Learn how plate glass was cast, ground and polished. Explore the making of millions of glass bottles.

Visit British Heavy Industry in 1844!

Journey to Glasgow to see grassy fields covered by acres of newly dyed cloth drying. The chemical processes involved seem primitive by today's standards, but the results were impressive.

Near Newcastle you'll see lead ingots being cast, small lead shot being molded, and lead plates being cast. Learn how red lead and white lead, so deadly to painters of the era, was made.

Briefly visit Sopwith's cabinet factory, Stephenson's locomotive factory, the linseed oil mill, and the starch factory.

Finally, marvel at the newest technology: electroplating. Electricity just then being investigated by Faraday in London and others in Europe, and yet it was already being used in industry!

You get a surprising number of woods cuts (but, of course, never quite enough). And you get details about the outrageous taxes the Brits were paying (seems to me that sort of thing led to a tea party once in Boston), about how workers suffered from deadly lung diseases, poured incredibly hot molten steel with wet leather as their only safety gear, and even a few details about housing and social events. Incredible stuff.

If you lived in England in the 1840's, this could have been YOUR occupation. These workman could have been you. Retirement plans? What retirement? You would have been lucky to reach your fortieth birthday.

Fascinating book. Well written. Easy to read. Written for the layman. Interesting wood cuts. Big type for old men like us with trifocals. A fun book I think you'll enjoy. (If you like it, let us know. We might publish a sequel.) Get a copy. Worth having. 8-1/2 x 11 softcover 152 pages

No. 23039 $14.95

THE COMPLETE BOOK OF

Locks and Locksmithing

5th Edition

by Bill Phillips

From the back cover:

For years the top reference in the field, this book suits everyone from beginners who want to master techniques step by illustrated step, to pros who need an up-to-date, all-inclusive shop manual. This is a book that can help almost everyone at one time or another....

Now in it's 5th Edition, this classic locksmithing text includes: complete illustrated explanations from a master locksmith, safe opening and servicing techniques, electronic and high security manual locks, auto lock opening and servicing how-to's, lockmaking instructions, and a list of tool and equipment resources.

If you have ever locked your keys in the car you know the value of a good locksmith...this book shows you the insider secrets that the locksmiths get paid for. In this 25th anniversary edition of the 1976 classic, you get the latest, most comprehensive resource available to date.

Loaded with new illustrations, 7-1/2 x 9, softcover, 562 pages.

No. 110 $29.95

Gonzo Gizmos

PROJECTS & DEVICES TO CHANNEL YOUR INNER GEEK

by S Field

The copy from the backcover tells it as well as I can...

"This informative step-by-step guide will show you how to build more than 30 fascinating science devices. Construct a simple radio with a soldering iron, a few basic circuits, and three shiny pennies. Use optics to roast a hot dog – no electricity or stove required – just a flexible plastic mirror, a wooden box, a little algebra, and a sunny day. Build a plastic 'hydrogen bomb' to amaze and startle your friends. These are the experiments your science teachers probably never showed you: a magnet that levitates in midair, a metal that melts in hot water, a Van de Graaff generator made from a pair of empty soda cans, a laser that transmits radio signals, and more. Each project includes material and tool lists, detailed illustrations, and construction diagrams needed to complete the job, and every experiment is followed by an explanation of the physics or chemistry demonstrated. Gonzo Gizmos belongs on the workbench of all weekend warriors, grown-up geeks, and anyone who has secretly longed to be a mad scientist."

Six chapters cover magnetism, electromagnetism, electrochemistry, radios, thermodynamics, and light & optics. Lots of really great projects you can do on the cheap. If there is any criticism, it's that the descriptions are too short. But what do you expect? Thirty project descriptions in a single book. They HAVE to be short. And once you find something you like, you will want to research it in other books anyway.

Film can cannon, 3-D photographs, solar cell, steam engine, heat engine, laser communicator, spectroscope, AM radio transmitter, and much more!

Books like this are rare. Probably because of the dumbing-down of America. But I'm convinced there are at least a few people with a few creative brain-cells who will appreciate this. Get a copy. I think you'll like it as much as I do. 7x10 softcover 228 page

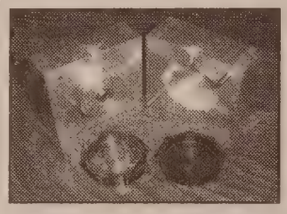
No. 5104 $16.95

SECRETS OF BUILDING A

Plastic Injection Molding Machine

by VR Gingery

"Most plastic components these days are created by huge, expensive plastic injection molding machines. Molten plastic is forced under enormous pressure into intricate molds.... Here is the book that simplifies this technology making it possible for you to inexpensively injection mold small parts from common recycled plastic.



You get complete step-by-step instructions revealing the secrets of building a small inexpensive tabletop injection molding machine capable of molding up to a half ounce of plastic. Although a half ounce may not appear to be much plastic, the truth is, that it is more than enough to produce many small useful items.

Best of all you'll be molding with plastic recycled from milk jugs, soda pop bottles, plastic oil cans, and more. Your raw materials are free and plentiful.

You will learn the basic principles of injection molding and how to design and make your own molds. Before long you will be creating new products of your own design. You will be able to cast replacements for broken or missing parts, or you can make copies of plastic components. "

This machine molds thermoplastics, not thermosets. It uses plastics that can be remelted, and thus, recycled, such as old milk bottles, recycled 2 liter soda jugs, and more.

Great book. Rare info. Looks like something to have fun with. Get a copy! 5 1/2 x 8 1/2 softcover 127 pages

No. 1441 $15.95

SECRETS OF BUILDING A

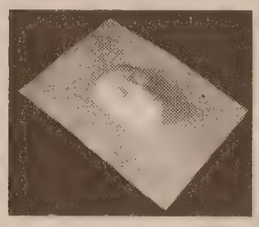
Plastic Vacuum Forming Machine

by Vince Gingery

Geez... I can show you a photo but until you hold a vacuum formed sheet of plastic in your hand you don't know how powerful this thing is. It's professional quality. And you can build it for far less than you can buy a machine.

Vince explains:

"The machine is built almost entirely of angle iron and flat bar. Construction is simple, with some welding being required. Being built on wheels makes the machine easy to move from place to place. It has a unique clamp frame that works very well and the adjustable work surface (platen) is a real asset. The machine has a 12" x 15" forming area, and I have formed ABS plastic up to 3/16" thick with it. I believe the machine would form 1/4" as well. Of course, thicker plastic takes longer to reach forming temperature.



The machine operates on a 20 amp 120 volt circuit using a 1500 watt, 120 volt heating element. Vacuum is supplied either by air venturi pump or electric vacuum pump.

Usual Gingery quality. Get a copy.

5 1/2 x 8 1/2 softcover 107 pages

No. 1491 $15.95

DO IT YOURSELF

Vacuum Forming

by Douglas E Walsh

The author wrote me:

"I tried the obvious way first, as I'm sure many others have by using a kitchen oven and shop vacuum cleaner. The results were OK, but limited to simple parts in thin plastics. The oven part works fine but the vacuum cleaner just didn't provide enough vacuum.... Real vacuum pumps cost hundreds of dollars...

I thought about it some more and came up with eight other sources for vacuum, most of which are inexpensive and one is totally free! I was then able to combine a vacuum cleaner with a cheap source of higher vacuum. This gave me that magic combination of high vacuum and high flow necessary for serious forming.

This easy-to-read book shows you how to get set up to do simple forming for around $15.00 or less if you scrounge for parts. You can also build a two-stage high vacuum system for $50-$60 that can form up to 1/4" thick plastics...."

Chapters include the basics, heat sources, vacuum sources, forming equipment, plastics, molds, forming and finishing. You get straight forward to-the-point how-to with plenty of photos and drawings.

Possible money maker! Fun to try. Here's an excellent book by a man who has done it, and explains it clearly. Get a copy! 5 1/2 x 8 1/2 booklet-style spine 128 pages

No. 1308 $12.95

Don't Order From Old Catalogs!

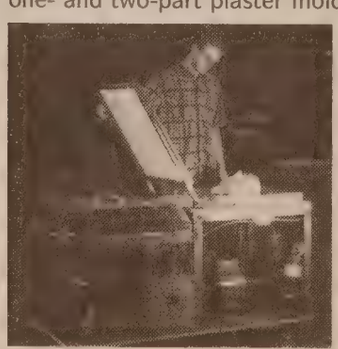
Save our catalogs if you wish, but don't order from old ones. If you haven't seen a book listed in one of our catalogs in the past six months, there is an excellent chance that we no longer stock it. Write for a new catalog.

The Prop Builder's Molding & Casting Handbook

by Thurston James

Try this! Take a dead carp before it decomposes and make a couple two-part plaster molds. Then make urethane castings with the molds. These are the techniques that Hollywood uses to make props for movies.

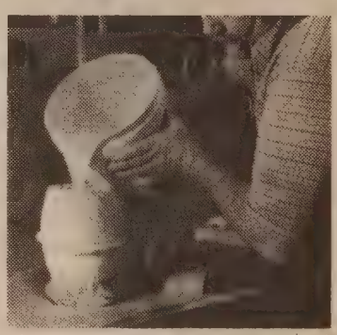
This is a great book all about making molds and casts for theatrical uses. You'll learn about one- and two-part plaster molds, a two-part mold using the shim method, molds from dental alginate and moulage, and a variety of molds using latex rubber, Silicone RTV rubber, injected Silicone molds and more.



You'll learn what type of release compound to use for each combination of mold and casting material.

Then you'll learn how to do absorption casting with latex and neoprene casting rubber. You can make papier-mache, Celastic and fiberglass casts. You can cast with hot melts such as wax, machinable wax, hot plasticine, hot melt glue, and hot melt rubber. You can make fake "glass" bottles to break over people's heads, or panes of glass to safely throw people through during a barroom brawl (or the Christmas family get together). You might want to cast with polyester resins, urethane foam, plastic wood, Durham's Rock Hard and more.

Then there is a whole section on vacuum forming with thermoplastics using a large, high-performance, homemade vacuum forming machine. You can watch as artists reproduce railings, cornice molding and even tile roofs in lightweight plastic sheeting. It's quite impressive. And the whole book shows you how you can do it, too.



Wall-to-wall photos. Detailed how-to. Hints, tips and secrets. This is a book on casting practically everything EXCEPT metal. Rare information. I think you'll really like it. You get your money's worth, and then some in my opinion. 8 1/2 x 11 softcover 236 pages

No. 1328 $19.95

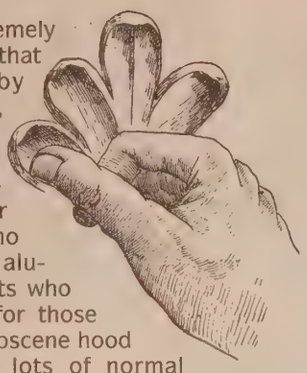
Clay Modelling and Plaster Casting

by Paul N Hasluck
reprinted by Lindsay Publications

Some guys (I think they call them blacksmiths) beat a piece of hot metal with gigantic hammers until they get what they want. Talk about hard work! No wonder they have arms as big as logs! But not me.

There's an easier way. As an experiment I once modeled an obscene hood ornament for my car out of clay, made a plaster waste mold, used that to make a plaster master that was then used to make a sand mold. A simple pour of the ladle, and I could make multiple copies quickly. Much simpler than big hammers. (but that's why my arms are as big as pencils!)

Chapters include drawing for modellers, tools and materials, clay modelling, modelling ornament, modelling the human figure, waste-molding process, piece-moulding, gelatine moulding, taking plaster casts from nature, clay squeezing and molding, finishing plaster casts, and a picture frame in plaster.



This is an extremely useful technique that can be used by model builders, restorers of old homes who need to duplicate missing moldings, for those of use who pour iron and aluminum, for artists who love to sculpt, for those of us who love obscene hood ornaments and lots of normal people, too.

Lots of illustrations: one on almost every page. Lots of information that can be adapted. Great lessons to be learned. Get a copy! 5-1/2 x 8-1/2 softcover 160 pages
No. 22679 $9.95

HOW TO REPAIR

Plastic Bodywork

by Kurt Lammon

Years ago plastic was looked upon as an inferior material, as being cheap, second rate. Today we know that plastic, properly applied, is a superior building material. In fact, we build the highest performance aircraft with plastic.

You get a great nuts-and-bolts how-to book on the repair the plastic bodywork of cars, motorcycles, trucks, ATVs and snowmobiles. And it delivers. But it's more than that. It's a hands-on lesson in manipulating the most commonly found types of plastic. And since everything seems to be plastic these days, this info is as valuable as knowing how to weld.

You get chapters that will discuss the complexity of repairing the plastic component; how to identify thermoplastics versus thermosets, polypropylene, PVC, polycarbonate, polyethylene, nylon, ABS and more; what your repair options are for thermosets and thermoplastics; details on actual repairs with epoxy, urethane, acrylic, polyester, and two-part adhesives; and finally a chapter on refinishing. And more.

If you repair automobiles, you need this. For the rest of us, it's an exceptionally valuable plastics book to have on the library shelf for reference. It will probably help you repair the damage to your fiberglass garage door the next time you back out before lifting the door. It probably won't help you repair your upper plate or those latex novelties stashed in your dresser drawer.

Nevertheless, a great book. Get one! Full color illustrations throughout. 8-1/2 x 11 softcover 142 pages
No. 6154 $19.95

The Fiberglass Repair and Construction Handbook

by Jack Wiley

"Step-by-step instructions cover everything from safety precautions to materials selection to the final lamination process. Practice exercises offer hands-on experience for working with glass cloth, mat, core materials, and resins. Information is provided on molding, structural concepts, and the caring for cured fiberglass. There is even a list of suppliers, repair techniques for materials other than fiberglass, and a complete section on covering wood with fiberglass."

If you want to learn to fabricate and repair fiberglass components, this is a great place to start. You get all the basic techniques and information as well as chapters on repairing and customizing auto bodies, covering wood with fiberglass, laminating over rigid foam, projects using contact molding, and more.

Perhaps this book could put you into an interesting manufacturing business. Hmmmm... You could build a glider with a small engine, and use it as a cruise missile using your mother-in-law as the warhead. Well... perhaps not...

Good book. Get one and start working fiberglass. 7 1/2 x 9 1/2 softcover 260 pages
No. 1471 $24.95

Violins and Other Stringed Instruments

HOW TO MAKE THEM

by Paul N Hasluck
reprinted by
Lindsay Publications

Fig. 106.—Spanish Guitar.

This is short and sweet. The first half of the book reveals the tools, methods and secrets of building a violin. The second half takes these principals and reveals changes and details to enable you to build a bass, a Japanese one-string violin, a mandoline, guitar, banjo, zither and dulcimer.

You get a book loaded with illustrations and detail. How good are the instruments? Can't tell. I haven't built one, and even if I had, I'm not enough of a musician to be able to judge. But it looks like fun.

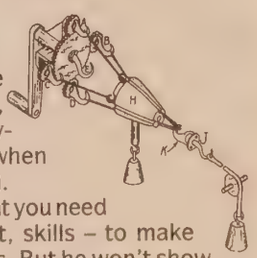
Oh, I'm sure that if and when you start building, you'll want to buy other books dedicated to building a specific instrument. If you've been dreaming about building, or have an instrument you want to try your hand at repairing, then perhaps this is the place to start. You get an enormous amount of information for a very reasonable price (dirt cheap, really).

So cut down your neighbor's beautiful trees and turn them into a violin. String it with the intestine of your neighbor's cat. And serenade your neighbors with awful music until they move. (or fire bomb you...)

Excellent little book. Unusual. Quality. Get one. 4x7 softcover 160 pages
No. 22245 $9.95

Making Rope

WITH A HAND OPERATED ROPE MACHINE



by Greg Davis

Yup. You can make rope from manila, sisal, jute, polypropylene, nylon, flax, and hemp (when you aren't smoking it).

Davis will show what you need – supplies, equipment, skills – to make rope on a regular basis. But he won't show you how to make a rope machine. If you can't find a used one, you can build one. When you see the illustrations from old catalogs and patents, you'll see how simple they are. Perhaps you can manufacture machines for sale??? Chapters include a quick description of rope making, rope making equipment, additional items necessary for rope making, design the rope, rope lay-up process, make the rope, projects, and miscellaneous.

A privately published book from someone who actually makes his own rope. Get one, and get started. 5-1/2 x 8-1/2 plastic comb binding 77 pages
No. 6144 $14.95

Running an Engine Lathe

by Fred H. Colvin
reprinted by Lindsay Publications

If you're just starting out using a metal cutting lathe, or you're trying to learn techniques you feel you should have known all along, then grab this. This small, but jam-packed book will show you all the basic techniques of running a lathe.

Thirteen chapters cover the engine lathe, centering lathe work, driving the work, tools and turning, steady and follower rests, faceplate work, chucks and chucking, boring tools, taper turning, cutting screwthreads, test indicators and their use, three types of centering mandrels and care of the lathe.

You'll learn all about essential operations in easy-to-read and understand text illustrated with simple, clear drawings. You'll learn about different kinds of dogs (not the barking type), split collars, toolholder and bits, work with shoulders, boring the end of a bar, home-made follower rest, saving a poor casting, bridle for faceplate work, slotted chucks for flat work, precision drilling, boring cylinders, ways of figuring tapers, rapid thread cutting, cutting a double or triple thread, cutting Brown & Sharpe worm threads, using dial indicators, and much, much more.

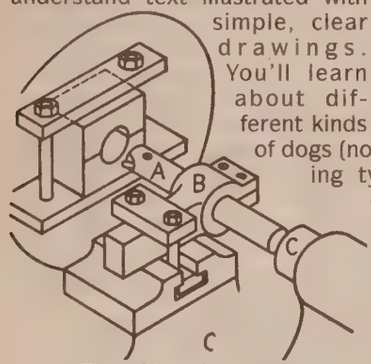


FIG. 83.—Accurate boring in the lathe.

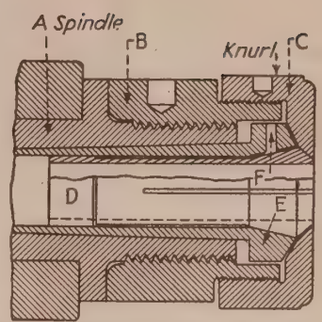
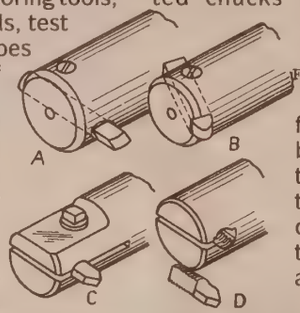


FIG. 73.—A collet that has several good points.



There are many tables describing tapers, V threads, square threads, ACME threads, grinding angles on many different tools, and more.

"Practical suggestions which will give the young machinist or apprentice the foundation principles of engine lathe work."

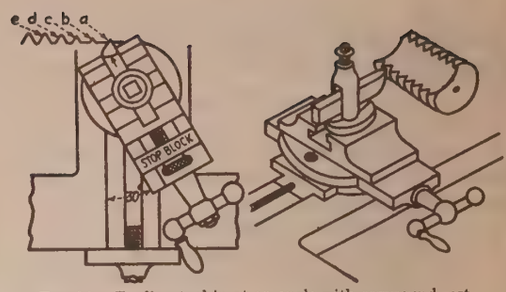
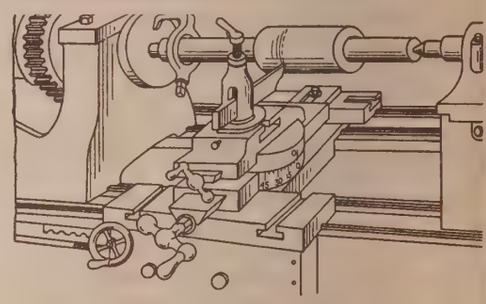


FIG. 94.—Feeding tool in at an angle with compound rest.



The author was an old man when he authored this in 1941. He was editor emeritus of American Machinist magazine, and was the Colvin of Colvin & Stanley fame that turned out American Machinist handbook and countless texts. The man was an expert machinist.

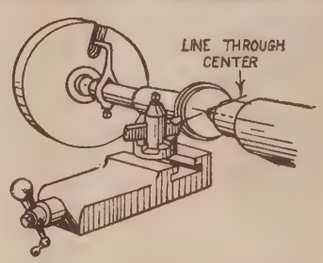
Here's a great little book at a great little price that you can't afford not to have, especially if you consider yourself a beginner on a lathe. Excellent book! Bargain price. 5 1/2 X 8 1/2 softcover 117 pages
No. 4708 $6.95

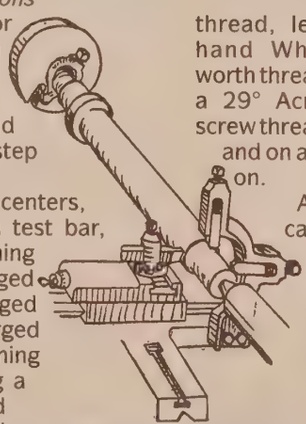
Lathe Operations

by J. W. Barritt
reprinted by Lindsay Publications

Great workbook lessons for student machinists! You get a brief introduction to the lathe, cutting speeds and lubricants, cutting tools and their use, and then you get detailed step-by-step lessons.

You'll learn about grinding centers, aligning tailstock center to a test bar, machining a steel pin, machining a steel shaft, machining a forged steel shaft, machining a forged steel rotor, machining a forged steel gear and spindle, machining a forged steel roll, machining a spotfacing bar (for Morse and Brown & Sharpe Tapers), and Machining a Tool Steel Lathe Center.





51 Detailed Projects!

After a straight-to-the-point discussion of screw cutting, you'll learn the secrets of machining a forged steel body-bound bolt, machining a machine steel taper bolt, machining a tool steel screw, machining a machine steel worm, and more. When you're done with these lessons, you'll be able to cut a quadruple 1/4" pitch, 1" lead Brown & Sharpe RH thread, a 4-pitch right hand single Buttress thread, left-hand Whitworth thread, a 29° Acme screw thread, and on and on.

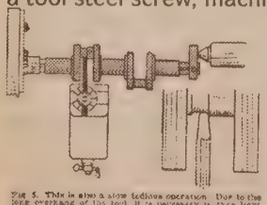


Fig. 5. This is also a slow tedious operation. Due to the long overhang of the tool, it is necessary to take light cuts and light feeds. When setting the tool place it well above center. It is well to have the work in the position shown when setting the tool for the overhang. When turning very large shafts, it is customary to brace the end of the tool.

And the lessons continue. Machine a cast-iron hand wheel, a cast-iron gear, worm, cylinder head, a cast steel trunnion, a brass spacing washer, a brass taper sleeve, a cast-iron packing box bushing, and many more.

Within these lessons you'll learn to machine a dovetail surface, ream a taper hole, how to center a casting with a shifted core, how to undercut, how to cut an internal taper thread, how to use a steady rest and pot chuck, machine a crankshaft, and much more.

Here's a machine shop course you can take at your own speed. Combine this with several other quality books from this catalog, and you can become an expert machinist. If this were published today, it would probably cost you at least twice our price. And how much of this has changed since 1937? Zilch.

Get a copy of this. It's quality. You'll like it. Worth having. 8 1/2 x 11 softcover about 176 pages
No. 21109 $13.95

The Inimitable DAVE GINGERY died May 3, 2004

Additional information as well as a look back at this larger-than-life character can be found on our website.

MACHINERY'S INDUSTRIAL SECRETS

Lathe Notes Vol 1

articles for Machinery Magazine
reprinted by Lindsay Publications

Articles published after WWI on designing change gears, on various types of gibs and gibbing, unusual spinning chucks used for the production of coffee pots, kettles and the like. Study articles on how a complex lathe feed gear box was simplified, on radius turning attachments, and on attachments and fixtures for elliptical turning and boring.

Study the large article on "Checking Lathes for Accuracy". You'll learn how the pro's test beds for straightness and parallelism, inspect lead screws, check the headstock spindle, truing the face plate, and more.

If you get one good idea from this booklet, you'll have gotten your money's worth. Well illustrated. Fun, useful reading. Get a copy. 5 1/2 x 8 1/2 booklet 48 pages
No. 22229 $5.95

MACHINERY'S INDUSTRIAL SECRETS

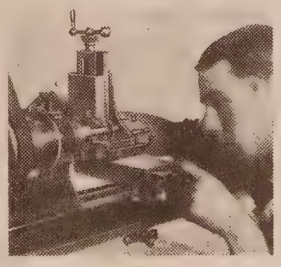
Lathe Notes Vol 2

articles from Machinery Magazine
reprinted by Lindsay Publications

The first two articles are heavily illustrated articles revealing design features of small lathes being manufactured in 1924. These include the classic Drummond round bed, the Wade, those by Exe, ETA, Cheltenham, and others. You see how they were designed from the headstock to the tailstock.

Examine details on power cross feeds, how the Brittannia bed could be set at an angle, and study a vertical milling attachment that bolted to the lathe bed.

The whole second half covers "Work of the Bench Lathe" showing how simple lathes could be used to turn out quantities of accurate work, from facing and counterboring with a rack & pinion slide rest and accurate shoulder turning to thread cutting and milling slots in a bench lathe collet chuck!



Fascinating reading . Heavily illustrated. Worth having. 5 1/2 x 8 1/2 booklet 48 pages
No. 22288 $5.95

MACHINERY'S INDUSTRIAL SECRETS

Lathe Notes Vol 3

articles from Machinery Magazine
reprinted by Lindsay Publications

Compare British and American lathe designs: beds, saddle dimensions, headstock types and drives, and so on. Study an offset tail stock attachment for turning tapers, a ball turning attachment, a quick indexing attachment for simple production work, a dividing attachment, and a milling attachment "originally designed for milling the flutes or grooves in taps and reamers...".

Visit the American Tool Works and watch them chase a 20 foot long 2" dia. lead screw to accuracy better than a thousandth per foot. Discover a set up used to a grind a triple thread worm with a 1 inch pitch (3 inch lead). Then watch machinists make throttling rods for 240mm French howitzers, and more. And you get a design for a wiggler.

Great work by master machinists with simple tools. Great reading. Get a copy!
5-1/2 x 8-1/2 booklet 48 pages
No. 22350 $5.95

MACHINERY'S INDUSTRIAL SECRETS

Lathe Notes Vol 4

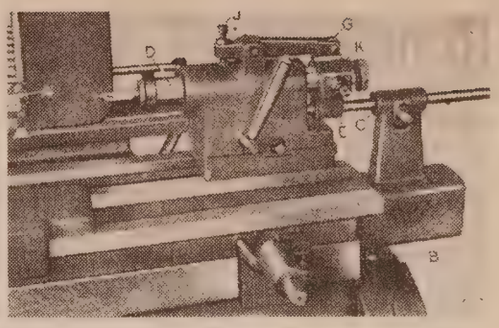
articles from Machinery Magazine
reprinted by Lindsay Publications

Discover 1918 tricks for thread cutting in the lathe. Study attachments for cutting screws of large lead without breaking teeth off the change gears, a special lead-screw for cutting coarse pitches, methods of cutting threads so that the pitch is slightly greater or less than standard (to allow for heat treat shrinkage), use of translating gears for cutting metric pitches, designs of quick threading attachments, thread chasing attachments, devices for cutting tapered threads and more.

Another lengthy article provides a basic course in thread cutting, discussing the ideas behind the thread indicator, how to make successive cuts without an indicator, how to index and adjust the compound rest for multiple threads, using a multiple tool to cut multiple threads, and more.

Long time customer, machinist, firearm builder, Phil Lebow wrote to say the info on cutting square threads was worth far more than the price of the booklet. The method was better than he had learned as an apprentice!

More practical how-to. Good stuff. Get a copy. 5-1/2 x 8-1/2 booklet 48 pages
No. 22504 $5.95

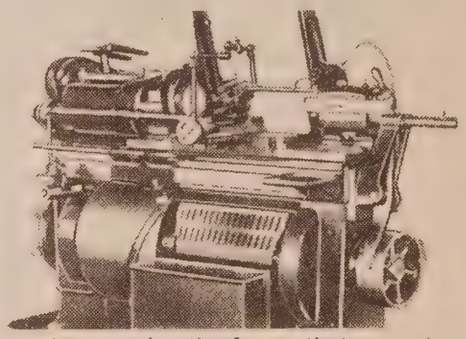


Machinery's Industrial Secrets

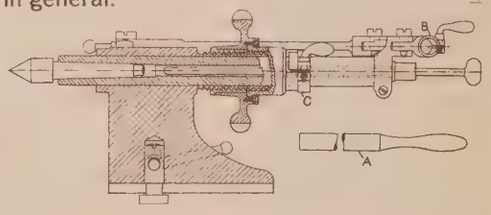
Lathe Notes Vol 5

articles from Machinery Magazine
reprinted by Lindsay Publications Inc

The saddle on a lathe must be substantial to withstand the enormous forces of cutting metal without flexing or distorting. A short article complete with diagrams and several formulas examine the forces that are set up and must be compensated for. If you're building a lathe, there may be something here of importance for you.



Then you get details on cutting coarse threads on a standard lathe, how one machinist cut worm gears with an improvised hobb, as well as a longer article on hobbing in general.



Three lengthy articles will reveal a variety of tailstock designs that were common about 75 years ago. You get mechanical drawings and descriptions. Many are not commonly seen these days like cross-slide tailstocks, double tailstocks, and tailstocks with work drive.

Then a short humorous story of how a machine shop pro fixed the lathe that wouldn't turn straight.

Two different articles from 1916 and 1923 reveal the steps taken in inspecting new lathes to be sure they meet specifications. Included are drawings showing tests for alignment of spindle to ways, headstock-tailstock alignment, and a nine step chart for testing a lathe.

Finally you get a short lesson on how back-gear ratios are chosen, along with details on the Lorch short bed precision lathe.

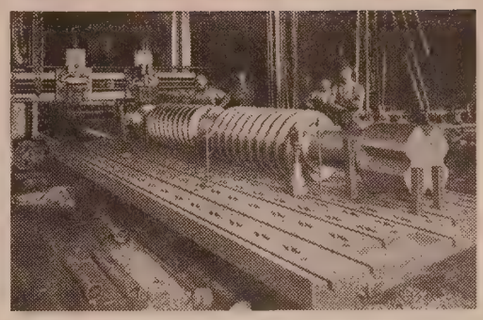
Building a lathe? Rebuilding a lathe? Or just looking for new ideas? This can help. Great how-to material. Inexpensive. Get a copy! 5-1/2 x 8-1/2 softcover 64 pages
No. 23144 $6.95

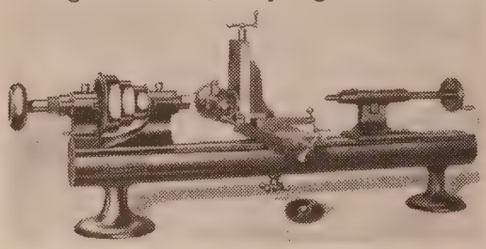
AMERICAN MACHINIST MEMORIES

Machine Shop 1900-01

reprinted by Lindsay Publications

A hundred years ago machinists would often send American Machinist, their favorit magazine, some trick or set up they had created to solve some machine shop problem they encountered. They would argue over the best ways to true up a worn chuck, case-harden some component, or use a dividing head. True, most of the articles are of little value to us. But scattered throughout the same pages are a few great articles, and you get them here.



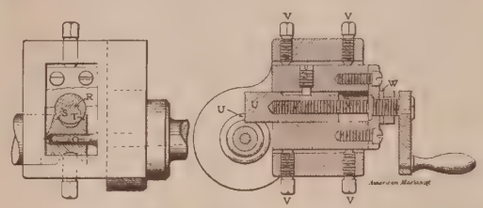


Check out details of the newer small lathes on the market like the small lathe created to machine taps with 200 to 300 threads per inch. Or the small lathe to create arbors for time pieces. A couple of experienced machinists debate the best way to true up worn spring chucks (we call them collets these days.) You get tips on making drills and taps, cutting square threads, making a square and more.

One lengthy debate centers around using an indexing head to cut a prime number teeth on a gear. Another interesting article tells of the development of interferometry to measure straight edges and threads to accuracies of millionths of an inch with light beams.

Some of this is fun like the article on the filthy dirty machine shop. Others are quite educational like hobbing worm wheels in a lathe. It's just the very best from the pages of American Machinist Magazine. And, of course, it's heavily illustrated. I think you'll like it. Get a copy! 8-1/2 x 11 softcover 80 pages

No. 22741 $11.95



Contents

A Tap-Threading Lathe – Threading Tools and a Grooving Fixture • A Shaping Machine With Novel Features • Improved Bench Lathe • An Improved Steady Rest • Handles, Ball-Cranks and Hand Wheels • Machine-Tool Handles Charted • Standard Machine Handles • White Metal or Gunmetal for Bearings • Truing Spring Chucks • Truing Chuck Jaws • One of the Earliest Milling Machines • A Spherical Grinding Rig • Cutting Spiral Gears on the Lathe • More Early Milling Machines • A Staff Lathe • An Antique Drill Press in an Antique Shop • Boring and Turning Flywheels and Pulleys • A Big Right and Left Steel Screw • A New System for the Manufacture of Steel Balls • Some Tricks in Spacing Gear Teeth Spacing for Prime Numbers of Teeth by a Jack-in-the-Box Mechanism • The Making of a Real Square • The Making of a Real Square Using Test Blocks in Place of a Square • Boring Head- and Foot-stocks of Lathes • Threading a 5-inch Pipe Without Dies or Lathe • A Knife-Edge Square • A Non-Wabbling Wabble Drill • Making Small Inside Micrometer Gages • A Lathe Indicator • Rectifying Defects in a Band-Saw Mill • A Large Bench Lathe • A Machine Shop on Wheels • Three Box Tools and Some Other Fixtures • Some Points of Experience in Making Twist Drills, Taps and Dies • Tube-Forming Tools • The Interferometer • Design for Special Screw Cutting Lathe • The Three-Bearing Lathe • A Test Indicator • Spacing the Teeth of a Rack • Cutting Square Threaded Screws • Hobbing Worm Wheels in a Lathe • A Case-Hardening Job • Handy Vise Attachments.

SOUTH BEND LATHE

Machine Shop Projects

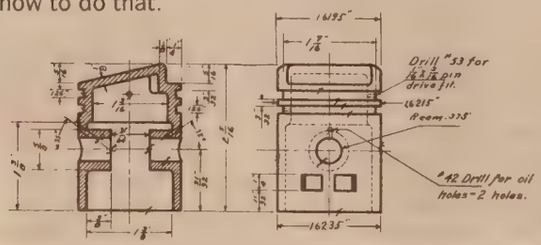
Companion to "How to Run a Lathe"

by South Bend Lathe
reprinted by Lindsay Publications

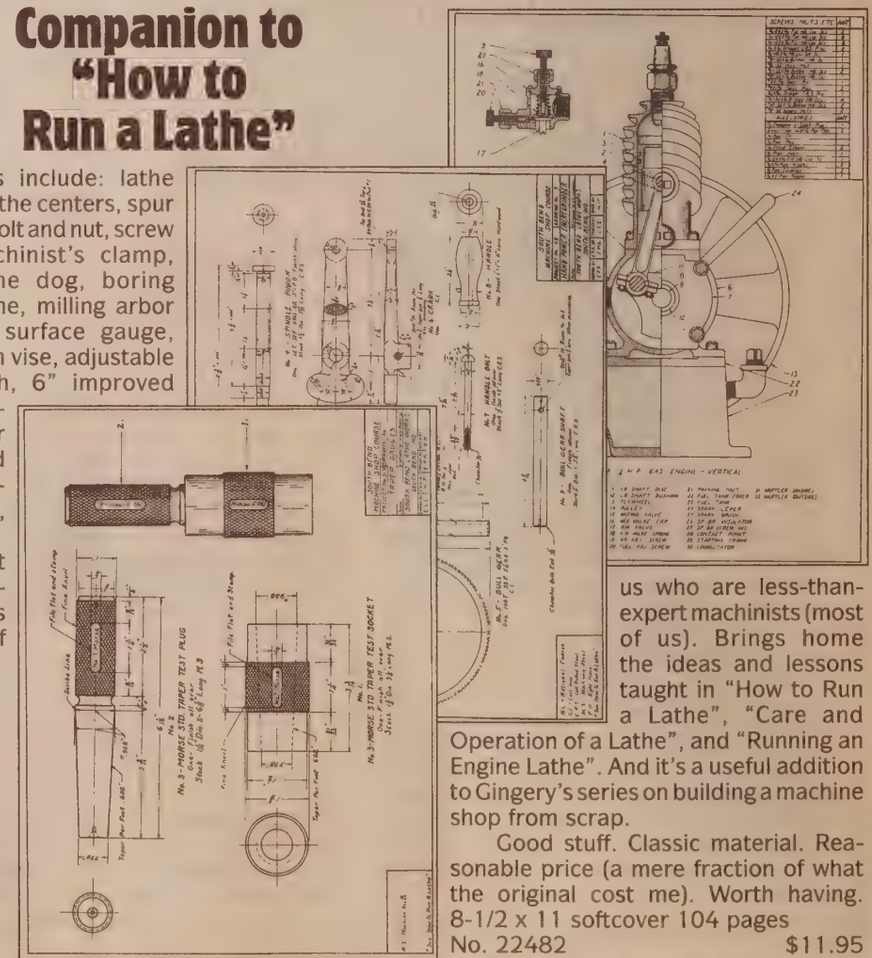
Back in 1954 when this publication was released, South Bend Lathe was still a leader in smaller, low-cost yet quality lathes that ended up in technical schools all over the country. That lower end market has been taken over by other manufacturers, mostly foreign, and South Bend now concentrates on building high-end lathes and other machine tools that sell for big prices.

This was produced as a companion to "How to Run a Lathe" to teach students in vocational and industrial schools basic machining skills. Because it is of little use to South Bend's current upscale customers, they don't publish it. Too bad. It's a great book for us. So it's back.

You get 34 different plans from a very simple nail set to 1/4 hp gasoline engine. Each project comes with a "blueprint" and a step-by-step list of operations. For instance, step 5 might say "Face one end only." You're expected to refer to "How to Run a Lathe" to get details on how to do that.



Projects include: lathe mandrel, lathe centers, spur center, 1" bolt and nut, screw drive, machinist's clamp, clamp lathe dog, boring bar for lathe, milling arbor for lathe, surface gauge, small bench vise, adjustable tap wrench, 6" improved water motor, arbor press, hand power emery grinder, and more.



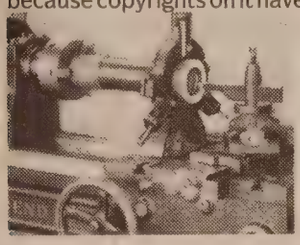
Great book of simple projects for those of us who are less-than-expert machinists (most of us). Brings home the ideas and lessons taught in "How to Run a Lathe", "Care and Operation of a Lathe", and "Running an Engine Lathe". And it's a useful addition to Gingery's series on building a machine shop from scrap.

Good stuff. Classic material. Reasonable price (a mere fraction of what the original cost me). Worth having. 8-1/2 x 11 softcover 104 pages

No. 22482 $11.95

How to Run a Lathe 1942

by South Bend Lathe Works
reprinted by Lindsay Publications



South Bend Lathe probably still produces a modern edition of this book at a much higher price. We've reprinted this 1942 edition of "Run a Lathe" because copyrights on it have expired. It's new enough to be very similar to current edition, and yet old enough to be applicable to a lot of the older lathes still in use.

You get everything you need to set up a lathe and get it running. This is the lathe manual that Dave Gingery raves about.

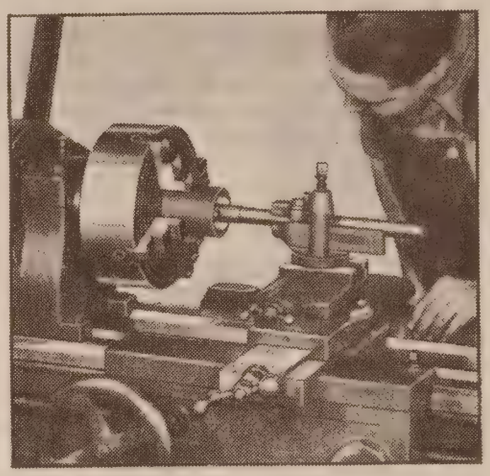
You get eleven chapters: history and development of the lathe, setting up and leveling the lathe, operation of the lathe, lathe tools and their application, how to take accurate measurements, plain turning (work between centers), chuck work, taper turning and boring, drilling reaming and tapping, cutting screw threads, and special classes of work. All the basics are here from sharpening drills to producing "superfinished" turned bearings, grinding valves, and turning multiple screw threads.

Remember, this is an introductory guide that was no doubt shipped with South Bend Lathes back then. Under no circumstances are you going to learn what is covered in "Advanced Machine Work". But this will get you going.

Great book. Great illustrations. And a great price! You can't afford not to have one now. 5 1/2 x 8 1/2 softcover 128 pages
No. 21150 $7.95

South Bend Lathe Booklets

by South Bend Lathe Works
reprinted by Lindsay Publications



South Bend Lathe published small booklets ranging from eight to twenty-four pages or more, each booklet dedicated to a particular topic. Here are eight of the most popular 1936 booklets reprinted in a single book.

In one volume you get: How to Grind Valves, Sharpen Reamers and Cutters in the Motor Service Machine Shop • How to True Brake Drums of Automobiles, Buses, and Trucks • How to Test and True Differentials • How to Bore Rebabbitted Connecting Rods • How to Make Bushings • How to Finish Pistons • How to Grind Lathe Cutter Bits • How to Cut Screw Threads in the Lathe

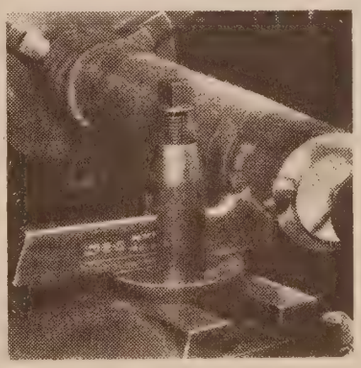
Obviously, South Bend was very much interested in promoting its products, and they knew the best way to do that was to show people how useful a lathe could be. These booklets are of exactly the same style of How to Run a Lathe being heavily illustrated with photographs and drawings. The section on cutting screw threads is, obviously, very similar to the chapter in the edition of "Run a Lathe" that we reprinted, but certainly not identical. The other booklets present new material.

Great stuff! Excellent illustrations. Fun reading. Useful how-to. This something worth having. Order a copy! 6x9 softcover 96 pages
No. 21583 $7.95

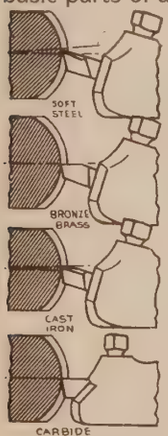
The Care and Operation of a Lathe

by Sheldon Machine Co, Inc
reprinted by Lindsay Publications

One of South Bend Lathe's competitors in 1942 was Sheldon Machine Co of Chicago. Sheldon saw the value of South Bend's "How to Run a Lathe" manual and apparently knew it had to publish its own. What resulted was a manual every bit as good as South Bend's, if not better.



Chapters include: the modern back geared screw cutting lathe, the basic parts of a lathe, the theory of metal cutting, grinding cutter bits for lathe tools, uncrating and setting up a lathe, oiling the lathe, setting up lathe tools, setting up the work on centers, turning, facing, knurling, thread cutting, drilling, boring, cutting off, and more. You get directions on mounting work in three and four jaw chucks, drilling and countersinking centers, "Running-In" the lathe, discussions of the variety of tool holders, use of collets, tool-post grinders and much more!



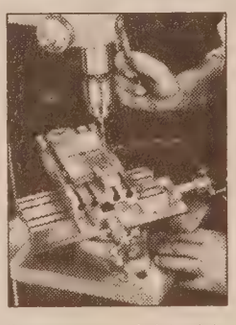
You may not own a Sheldon lathe, but the small Sheldon lathe was a generic machine very much like those of South Bend and a dozen other manufacturers. You'll find it useful no matter what lathe you use.

Great book! Great illustrations! Great price! No lathe operator can afford NOT to have a copy of this. 5 1/2 x 8 1/2 softcover 112 pages
No. 21052 $7.50

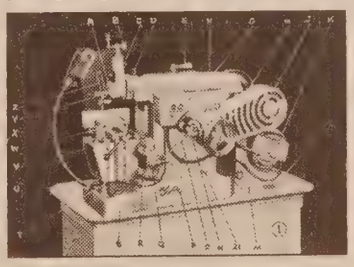
HOW TO RUN A

Metalworking Shaper and Drill Press

by South Bend Lathe
reprinted by Lindsay Publications



Here are two great how-to booklets originally published by South Bend Lathe years ago. You get wall-to-wall how-to and indoctrination. Neither is going to make you an expert machinist, but you will get loads of practical info that will get you going.



"How to Run a Metal Working Shaper" was copyrighted in 1952 and 54 back when South Bend still made shapers. You get sections on setting up, tools and holders, mounting the work, adjusting the shaper, operation, roughing cut, finish cut, vertical cut, bevel cut, and more. And it's wall-to-wall illustrations.

"How to Run a Drill Press" dates back to 1961 and was supplied with SB's 14" drill press. You get introduction, specifications, unpacking, installation, mounting the motor, changing spindle speeds, replacing spindle, adjusting return spring, laying out work, grinding, countersinking, tapping, polishing, drilling in glass, buffing, drilling to depth, drilling deep holes, routing, mortising, and more.

This is great stuff. Applicable to all brands. Get a copy of this. Worth having. 5 1/2 x 8 1/2 softcover 56 pages
No. 22130 $6.95

BEST OF

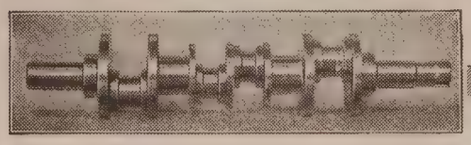
Yates's Shop Practice for Home Mechanics

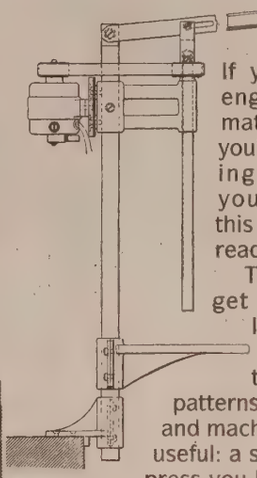
by Raymond F. Yates
reprinted by Lindsay Publications

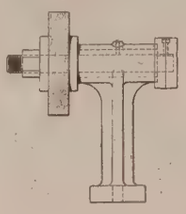
On the surface Yates's Shop Practice might sound like a great book, but it's not. Most of it is so simple that I could never ask someone to buy it, not when this catalog offers many better books. On the other hand it's not all bad, either.

Here, from 1920, you get the best 48 pages, and that's all. The other 272 pages went into the fireplace.

Here you get a quick discussion on boring in the lathe immediately followed by useful advice on the fabrication of crankshafts from either a single piece of flat stock or from multiple pieces brazed together.

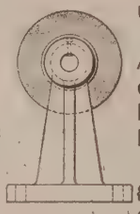






If you've already built an engine, this may be old material. If you're thinking about your first, this is worth reading.

Then you get a nifty little project that you can use to learn to make foundry patterns, pour aluminum castings, and machine them into something useful: a small drill press. The drill press you build is not nearly as robust as the Gingery machine, but it's a nifty project thoroughly illustrated showing the plans and the machining set ups.



And if that's still a bit too complicated, you'll want to examine the brief plans for a grinding head. Everyone needs a grinder.

If you just want to use a grinder or drill press, then go buy one. They're not all that expensive. If you want to learn metal working by completing a project that is useful and one you can take pride in, then get a copy of this. Geez... the price certainly is right.

Interesting material. Ask for one. 5-1/2 x 8-1/2 booklet 48 pages
No. 23080 $5.95

Practical Metal Turning

by Joseph Horner
reprinted by Lindsay Publications

Hey! Just what we need. Yet another lathe book. I must have a hundred lathe books. I've reprinted the very best, and let the rest sit.

Here's one that's different enough to justify reprinting and offering. One look at the unusual illustrations will tell you that.

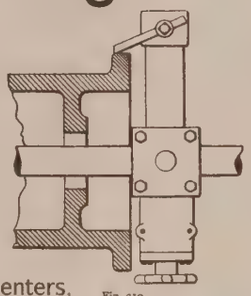
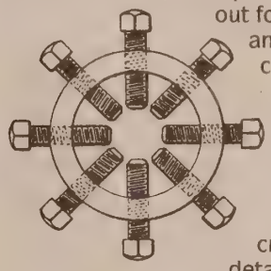
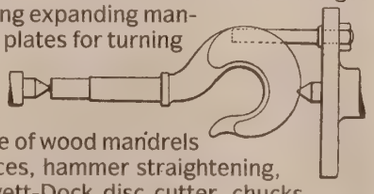


Fig. 310.

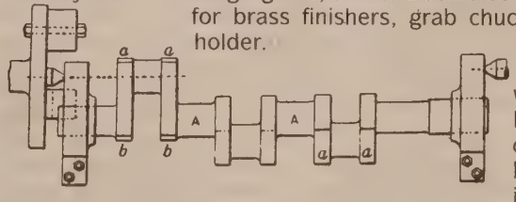
Chapters include: lathe and its work, forms and functions of tools, remarks on general turning, centring and driving, turning between centers, use of steadies, examples of turning involving lining-out for centers, mandrel work, face plate turning, angle plate turning, independent jaw chucks, concentric and toggle chucks, drilling and boring, screw cutting, turret work, measurement and grinding, tool holders, and speeds and feeds.



The examples and illustrations start where the beginner's books leave off. You get examples on setting up for turning a forked rod, crane hook, or multi-throw crankshaft. You get details on using expanding mandrels to turn small flywheels, angle plates for turning engine parts and valve components, and more.



Within each chapter you get discussions on bridging open ends, use of wood mandrels and other aids, taper turning devices, hammer straightening, Hendey-Norton change gears, Rivett-Dock disc cutter, chucks for brass finishers, grab chucks, the Tangye tool holder.



This starts where "How to Run a Lathe" or Colvin's "Engine Lathe" beginner books leave off. But it's not a school textbook like "Advanced Machine Work". This is a problem solving and idea book for craftsmen who already consider themselves machinists. There is a lot of basic information to be sure, but you get much more than that.

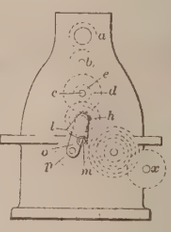
My first look at this 1906 volume told me instantly that this was significantly different from those hundred other lathe books in my reference library. So take a close look. I think you'll find it useful and interesting. 5-1/2 x 8-1/2 softcover 404 pages
No. 22776 $22.95

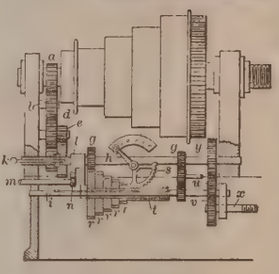
Change Gear Devices

by Oscar Perrigo
reprinted by Lindsay Publications Inc

"Showing the development of the screw cutting lathe and the methods of obtaining various pitches of threads."

Perrigo, author of "Lathe Design" which we have reprinted in the past, considered 164 different patents pertaining to change gears issued from 1854 through 1903 when this was written. After throwing out all the impractical designs, Perrigo examines the remaining twenty-nine.





You get small, well-illustrated, fascinating book showing how the headstock of the engine lathe could be geared to the leadscrew to get exactly the feed needed. It's not only about gearing, it's about the history of the lathe, the ingenuity that went into machine design in general.

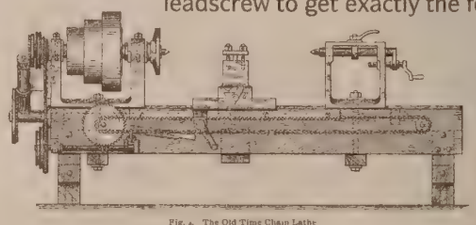


Fig. 4. The Old Time Chain Lathe

There are only three chapters as such: early lathe history, the patents, and the conclusion. But you'll see an old lathe with an oak bed, thread chasing techniques, pin gears and lantern pinions, and then gearing patents by Sellers, Humphreys, Bley, Miles, Riley, Wendel Norton, and many others.

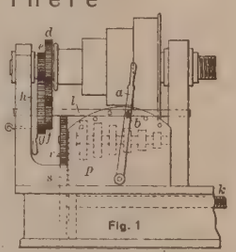
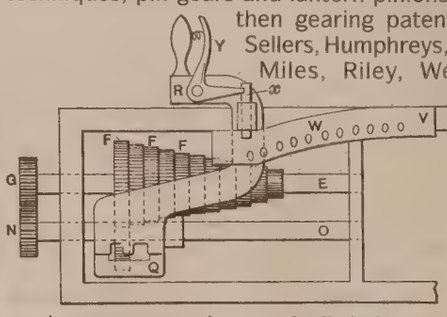


Fig. 1



Fun reading for the machine nut (like you.) Great history. Interesting details about how these devices worked (some seem quite strange) and what their strengths and weaknesses were. A gem of a little book. I think you'll like it. Get one. 5-1/2 x 8-1/2 softcover 81 pages
No. 23004 $8.95

Advanced Machine Work

by Robert H. Smith
reprinted by Lindsay Publications

"Prepared for students in technical, manual training, and trade schools, and for the apprentice and the machinist in the shop."

Here's the best general machine shop book I've ever seen old or new. Smith brought out this book in 1915, updating it in 1925. That makes it new enough to still be of great value, but old enough to contain a many techniques that are no longer taught.

You get easy-to-read text, step-by-step instructions, and great illustrations. Modern books are prettier, but they cannot possibly do a better job of teaching.

"Advanced" covers everything you can imagine from basic operation of a micrometer and vernier caliper, to the testing of machine tools for accuracy. You'll learn the different methods of turning tapers and their fitting, detailed instructions on cutting threads, making bolts and nuts, face plates and chucks, mounting work, turning flanges and pulleys, boring, threading, cutting square threads bolts and nuts, cutting multiple threads, knurling, and much more.

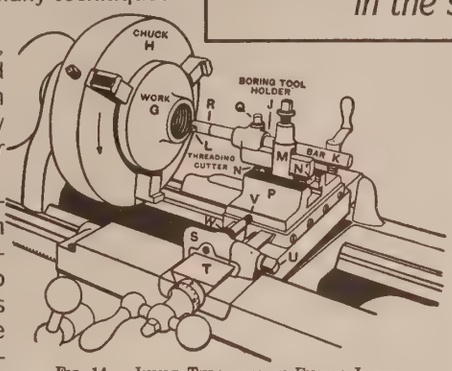


Fig. 14. — Inside Threading in Engine Lathe.

You'll learn about drilling jigs, eccentric turning, facing large cylinders, use of steadies and followers, external and internal grinding, and the grinding of piston rings, milling cutters, reamers, and more.

Chapter nine covers planers and their use. Learn to plane keyways, lathe beds, vises, and more.

In learning to use a milling machine you'll groove taps, flute reamers, mill T-slots in a circular table and more.

And there's so much more on everything from gear cutting to making mandrels, taps, twist drills, using indicators, sine bars and more. You'll learn how to make expensive tools that you now buy. You'll even learn how to check the accuracy of lathes, milling machines, drill presses, and lead screws, and even use of optical flats to measure to millionths of an inch!

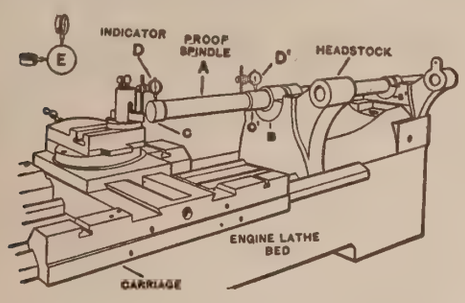


Fig. 2. — Testing Alinement of Spindle with the Ways.

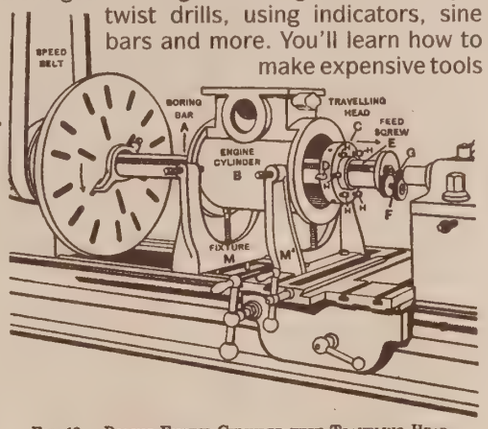


Fig. 12. — Boring Engine Cylinder with Traveling Head Boring Bar in Engine Lathe.

Just about everything you can imagine in amazing detail. This baby delivers! A bargain! Worth twice the price. I recommend it highly. People rave about it! Order yourself a copy today! 6 x 9 hardcover 800 pages heavily illustrated

No. 4236 $29.95

A "DAMNED FOOL" BOOK!

People who have seen this book claim "Anyone who considers himself a machinist and doesn't have a copy of this must be a damned fool!"
(I can identify with that...)

Package: 4236 Advanced Machine Work and 21770 Elements of Machine Work – Save $4.95
No. 932 $43.95

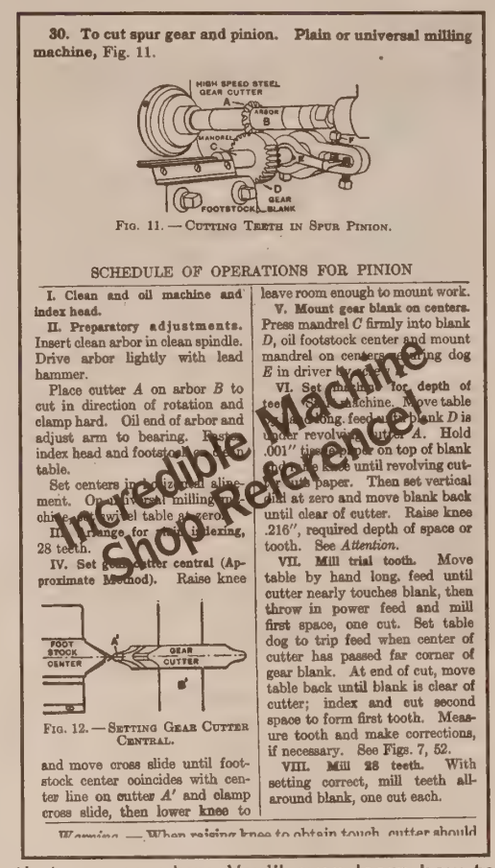

30. To cut spur gear and pinion. Plain or universal milling machine, Fig. 11.

Fig. 11. — Cutting Teeth in Spur Pinion.

SCHEDULE OF OPERATIONS FOR PINION

I. Clean and oil machine and index head.

II. Preparatory adjustments. Insert clean arbor in clean spindle. Drive arbor lightly with lead hammer.

Place cutter *A* on arbor *B* to cut in direction of rotation and clamp hard. Oil end of arbor and adjust arm to bearing. Place index head and footstock on table.

Set centers in line and adjust alignment. On universal milling machine set chuck and swivel table at zero.

III. Change for [illegible] dividing, 28 teeth.

IV. Set gear cutter central (Approximate Method). Raise knee

Fig. 12. — Setting Gear Cutter Central.

and move cross slide until footstock center coincides with center line on cutter *A'* and clamp cross slide, then lower knee to leave room enough to mount work.

V. Mount gear blank on centers. Press mandrel *C* firmly into blank *D*, oil footstock center and mount mandrel on centers, driving dog *E* in driver [illegible]

VI. Set machine for depth of tooth. Start machine. Move table by hand long. feed until blank *D* is under revolving cutter *A*. Hold .001" [illegible] paper on top of blank and raise knee until revolving cutter just nips paper. Then set vertical dial at zero and move blank back until clear of cutter. Raise knee .216", required depth of space or tooth. See *Attention*.

VII. Mill trial tooth. Move table by hand long. feed until cutter nearly touches blank, then throw in power feed and mill first space, one cut. Set table dog to trip feed when center of cutter has passed far corner of gear blank. At end of cut, move table back until blank is clear of cutter; index and cut second space to form first tooth. Measure tooth and make corrections, if necessary. See Figs. 7, 52.

VIII. Mill 28 teeth. With setting correct, mill teeth all-around blank, one cut each.

Warning. — When raising knee to obtain touch, cutter should

Incredible Machine Shop Reference

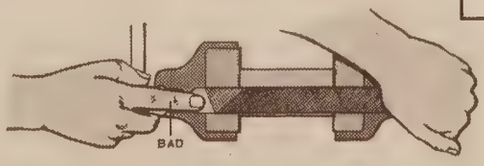
Elements of Machine Work

by Robert H. Smith

Companion to Advanced Machine Work

Here it is, the companion book to Advanced Machine Work (AMW). And it's quite a nice book even though it covers simpler material than AMW. But first an explanation is in order.

In the preface of our 1919 AMW reprint, Smith mentions Principles of Machine as being the companion book. In 1910 that book was entitled *"Elements"*. That same year, what was then *"Principles"* was greatly expanded to become *"Advanced"*. We could have reprinted 1910 *"Principles"* but everything in it was repeated in 1919 *"Advanced"*, so I don't think you'd let me sell you something you already have. Confused? I sure am. But that's never stopped me. Just trust me when I tell you that this is the same book mentioned in *"Advanced"* as the companion tome.



Contents include: materials used for machine construction, measuring, laying out, chipping, tool grinding, files, hand and machine filing, scrapers, scraping and standard surface plates, polishing, annealing, hardening & tempering, high-speed steel, case-hardening, pipe and pipe fittings, hand and machine methods of piping, straightening and bending, peening and riveting, hand drilling, soldering, brazing, babbitting, power transmission, aligning and leveling shafting and installing machines, and more.

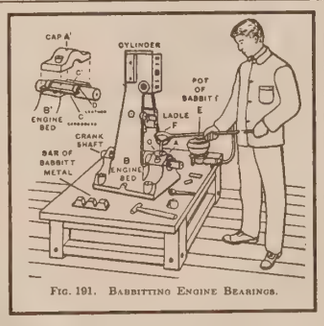


Fig. 191. Babbitting Engine Bearings.

If you have Advanced Machine Work (and if you don't, then why not?), you know how this book is laid out: lots of illustrations and step-by-step instructions. It is nowhere as large as Advanced, but it does an excellent job on the basic material it presents. A lot of this may be too basic for you, but I'm sure you'll learn something new nonetheless.

So order a copy so that you have both of Smith's classic books. Great material, but you already know that. Get one!

5-1/2 x 8-1/2 hardcover 192 pages
No. 21770 $22.95

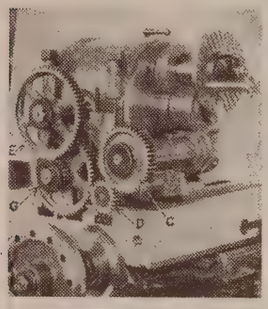
RUNNING A

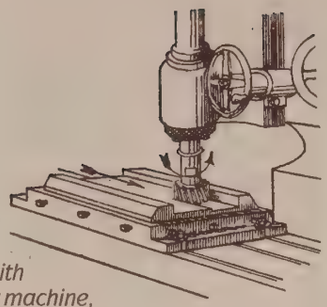
Milling Machine

by Fred H. Colvin
reprinted by Lindsay Publications

Colvin, "Mr. Machine Shop", writes in the preface:

"Although this book is by no means a complete treatise on all the problems of milling machines and the large variety of work that is done on them, it makes clear the general construction of the different types of machine and gives a general idea of the kind of work they do. It shows how the different machines operate, points out the necessity of having the work firmly clamped and the cutters sharp, and gives the foundation of the knowledge necessary to become a first-class milling-machine operator.





Beginning with the hand milling machine, which is the simplest machine of this type to learn how to operate, the book shows the other and more largely used kinds, gives the names of the principal parts, and shows a variety of the work that is done on them..."

This is a great companion to "Running an Engine Lathe" that was first published in 1941. Chapters include milling machines and their parts, examples of milling machine work, milling cutters, speeds and feeds of milling cutters, setting cutters for different kinds of work, milling vises and fixtures, the dividing head, a wide-range dividing head, and cutting helices sometimes called spirals.

Although most of the milling machines illustrated are horizontal machines just like the machine Dave Gingery will show you how to build, the material here is general enough to be useful on any milling machine - horizontal or vertical or even on milling attachments for lathes.

Well illustrated. Useful info. Worth having. Get a copy! 5 1/2 x 8 1/2 softcover 157 pages

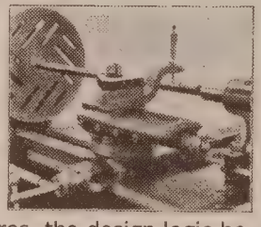
No. 20986 $9.95

MACHINERY'S INDUSTRIAL SECRETS

Machine Tool Adjustment

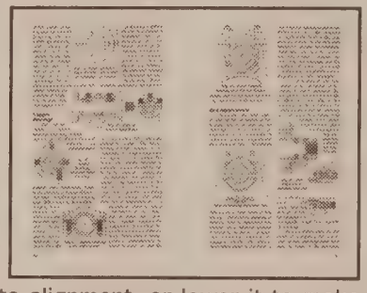
articles from Machinery Magazine
reprinted by Lindsay Publications

Post-WWI era articles from Machinery magazine on machine tools and their testing and adjustment.



A fascinating article on new Drummond lathes explains their features, the design logic behind them, and photos and descriptions of quality control tests run on the lathe before shipment.

Next, from July 1919 is a fascinating article that told British machinists how they could take their lathes almost worn out from WWI production, and restore them to factory accuracy in order to get years more life from them. Here you will learn how to make test measurements, and how to calculate how much metal should scraped from what portion of the headstock and saddle to swing the spindle around into alignment, or lower it to make the tailstock line up, or whatever else might be needed. You get sample calculations and incredible nuts-and-bolts tips on restoring a lathe to accuracy. This one article is worth the price of the whole booklet. Amazing how-to.



Next, you get a lengthy two part article on lathe bearings. This is about older bronze, brass and even steel bushings and sleeves, not ball- or roller-bearings. These very simple bearings could give incredible performance. You get valuable tips on the advantages of one type of bearing over another, and how they could deliver years of precise work so long as they were lubricated and adjusted properly.

Finally a short article takes you to the Pratt & Whitney factory to see lathe lead screws being tested.

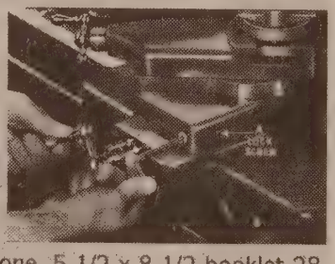
Great articles for the builder, restorer, or dreamer. Fun reading. Worth twice the price. Get one. 5 1/2 x 8 1/2 booklet 47 pages

No. 22180 $5.95

Keep Your Lathe in Trim

by South Bend Lathe Works
reprinted by LindsayPublications

From the Technical Service Department of South Bend Lathe Works. You'll learn how to "make all necessary adjustments, check power supply, protect lathe from abuse, and keep lathe in best operating condition."



This fifty year old booklet certainly won't tell you how to rebuild a lathe, but it WILL show you how to do the routine adjustments necessary to keep a lathe operating like new. Great little booklet. Get one. 5 1/2 x 8 1/2 booklet 28 pages

No. 21389 $3.95

Milling Machine Operations

by J. W. Barritt
reprinted by Lindsay Publications

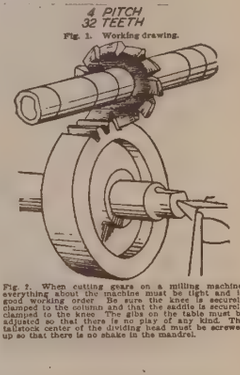
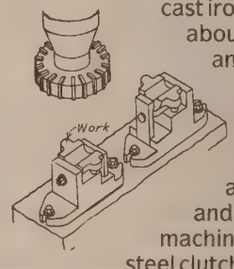


Fig. 1. Working drawing.

Fig. 2. When cutting gears on a milling machine, everything about the machine must be tight and in good working order. Be sure the knee is securely clamped to the column and that the saddle is securely clamped to the knee. The gibs on the table must be adjusted so that there is no play of any kind. The tailstock center of the dividing head must be screwed up so that there is no shake in the mandrel.

You get valuable illustrated lessons that can make you an expert with a milling machine. You get an introduction to the milling machine, the care of arbors, mounting the work, feeds and speeds, clearance angles and other essential topics.

You get step-by-step instructions and drawings that will teach you how to cut off a brass packing piece, cut off a cold rolled steel plate, saw a Bakelite plate, machine a brass spacer, a cast-iron bearing key, and several cast iron brackets. You'll learn about the indexing head and its use. You'll learn how to cut a tang on a tool-steel spotfacing bar, mill a machine steel latch pin, mill a machine steel stud and a variety of shafts, machine a cast-iron gear, a steel clutch, a bevel gear, a brass shoe, a forged steel packing piece, a machine steel pull pin, a steel worm, and more.



Most of the lessons show set ups for the horizontal milling machine which is the traditional miller that Dave Gingery shows you how to build in his books. Towards the rear of the book are several lessons for the vertical milling machine. Regardless of the type of machine you have, the lessons are applicable.

Make your milling machine sit up and sing rather than make it chatter! Quality lessons! Loaded with illustrations. Order a copy today. 8 1/2 x 11 softcover 110 pages

No. 21141 $9.95

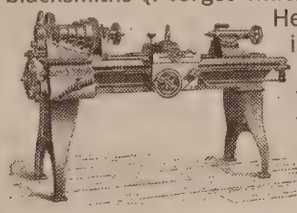
The Complete Practical Machinist

by Joshua Rose ME
reprinted by Lindsay Publications Inc

"embracing lathe work, vise work, drills and drilling, taps and dies, hardening and tempering, the making and use of tools, tool grinding, marking out work, machine tools, etc..."

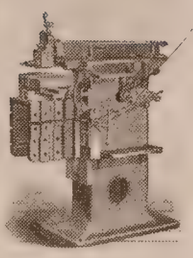
In the late 1800's Joshua Rose was THE machinist. He seemed to know everything and better yet, wrote about everything.

Here we have the 19th edition of "Complete Practical" from 1894. A customer told me that one of the expert machinists or expert blacksmiths (I forget which) working at the Henry Ford Museum in Dearborn highly recommended this volume as an invaluable source of early techniques. And I have to agree.



Chapters include: cutting tools for lathes and planing machines, cutting speed and feed, boring tools for lathe work, screw-cutting tools, lathe dogs and drivers, turning eccentrics, hand-turning, drilling in the lathe, boring bars, slotting machine tools, twist drills, tool steel, taps and dies, vise-work tools, fitting connecting rods, milling machines and milling tools, grindstone and tool grinding, lining or marking out work, machine tools, to calculate speed of wheels and pulleys, how to set a slide valve, and pumps.

You get page after page of practical 19th century how-to with 395 engravings to illustrate the lessons to be learned. I have a number of editions before and after this 19th. I chose this because it retains some early material deleted from later editions, but adds a new section describing AND showing the machine tools available and in use in 1894. Good stuff.



I reprinted one of the chapters a few years ago on vise work covering the use of chisels, files and scrapers to work metal to high precision. It's amazing what those guys could do with nothing more than a vise and file followed by some hand scraping.

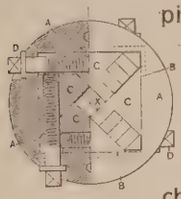
Great material for machinist, collector, restorer, historian and highly accomplished metal butcherers like us. Rose was God back then. Let him educate you in lost techniques. Those machinists didn't have the materials we have today, but they compensated by using their brains and hands in ways that you and I haven't learned yet.

Classic book. Good stuff. Get a copy. 5-1/2 x 8-1/2 softcover 504 pages
No. 22466 $24.95

Chucks - Review & Restoration

reprinted by Lindsay Publications

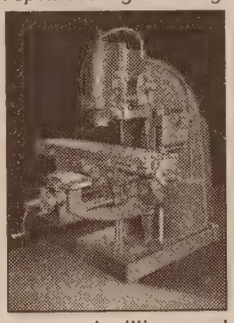
A series articles starting in 1913 discussing chucks of all kinds. Self-centering bell chucks, brass finisher's "clamb" chucks, wrench operated collet chucks, ways of locking internally threaded work, false jaws for collets, reversible dove-tailed jaws, wheel chucks for holding disks, and other unusual types. Study drill chucks: with ball bearings, roller bearings, pivot cam jaws, automatic chucks with floating drive, and much more. Read a series of letters written to the magazine over more than a year's time by machinists debating the best way to true up worn chuck jaws. Heavily illustrated.



5 1/2 x 8 1/2 booklet 48 pages
No. 22318 $5.95

Milling Machine Practice

by Cincinnati Milling Machine Co
reprinted by Lindsay Publications



No nonsense. Just straight talk about what you need to know to do quality milling. And it was put out by Cincinnati in 1942. They oughta know what they're talking about. Four chapters include analysis of the process of milling, milling cutters, use of milling cutters, and milling machines. Within these chapters are sections with titles like characteristic form of the milling chip, cutter classification based on relief of teeth, material for milling cutters, feed rate, rake angle, cutting fluid, comparison of up-milling and down-milling, rotary and drum type milling machines, knee and column milling machines and much more.

You get a great low cost booklet loaded with tables, diagrams, photos and practical information on the process of milling. Admittedly this was aimed at industry (probably for building 16" guns and Sherman tanks) but has direct application to the smaller scale machining we do and want to do.

Look it over. The quality is there, and the price is certainly right. Get a copy. 6x9 booklet 28 pages
No. 21990 $3.95

Accurate Tool Work

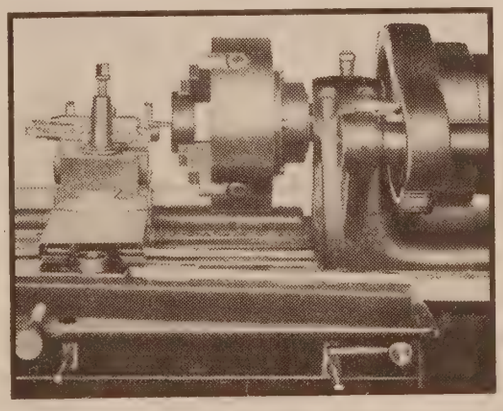
by Goodrich and Stanley
reprinted by Lindsay Publications

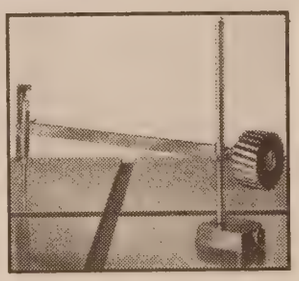
We haven't offered this in a couple of years. We just printed a few more of this gem because so many people still ask for it.

If you're building a solid walnut cabinet to store your hairpiece and your girlie magazines, you don't have to be much more accurate than 1/32" with the table saw. But if you want to build a steam engine or a tool grinder, that kind of tolerance just ain't gonna hack it. You'll need precision. And you can learn about precision from turn-of-the-century machinists right here.

"Where formerly but few men in the shops were directly interested in... the methods by which the holes in a jig could be accurately located and bored, today there are thousands of toolmakers who are employing refined processes, precision tools and appliances for executing this class of work"

You get well-illustrated how-to. Check out the table of contents, and you'll see what I mean. Besides learning to measure dovetail slides and V-ways, or making index dials





for your dividing head, you'll build a stand for a microscope and use it to examine, among other things, cutters for that engraving machine you want to build.

Within each section are paragraphs with titles like: stops for setting the miller table, making a pair of plates from a master, an accurate grooving operation, boring small deep holes, correcting the hardened master, and more.

Excellent book with unusual information written by people who did it. Good stuff. Get a copy! 5 1/2 x 8 1/2 softcover 217 pages
No. 4821 $11.95

Shaper Operations

by J. W. Barritt
reprinted by Lindsay Publications

You get "job ticket" lessons published in 1937 for machine shop students. You get a list of the tools required, a break down of the major operations with detailed steps in each operation, followed by quiz questions to test your knowledge. Each job is accompanied by illustrations and "blue prints" to show you how the work is mounted and machined. When you're done with each of these lessons, you should be very comfortable, if not expert, in running a shaper.

Get yourself a copy of this, Gingery's "How to Build a Shaper", "Advanced Machine Work", "Lathe and Planer Tools", and other books in this catalog and get to work. Not only is there lots to be learned, there is a lot of fun to be had! Order a copy and get started! 8 1/2 x 11 softcover 55 pages

No. 21036 $7.95

Step-by-step Lessons:

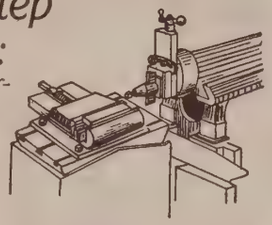


Fig. 2. The gib is shown resting on parallels and held in the vise, and the rocking table set at the approximate angle.

Machine plain surface on cast iron; Machine a plain surface on cast steel; Machine three surfaces with one setting; Machine a rectangular cast-iron block all over; Machine a cast-iron angle plate; Lay out and machine a cast-iron cylinder; Lay out and machine a tool steel V block; Machine a brass bracket; Cut a keyway in shaft; Cut a keyway in gear blank; Cut a deep slot; Machine a concave surface; Machine a concave surface of large radius; Machine a driver of machine steel; Cut a tool steel cam; Machine a cast-iron foot; Machine a steel wedge; Machine a taper gib; Machine a cast steel block; Cut a T slot; Cut a rack

Shaper Operations

is unbelievable. This book gives simple step-by-step instructions on "impossible jobs". I've never seen any of the operations described better. And most of it I've never seen attempted at all. Most of the machinists who knew how to run a shaper are dead. And even if they were alive few of them would be able to deliver such clean, no-nonsense instruction. If you have a shaper, you should have this book. And if you read this book, you will want to buy or build a shaper.

–Dave Gingery

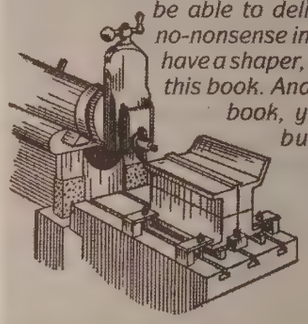


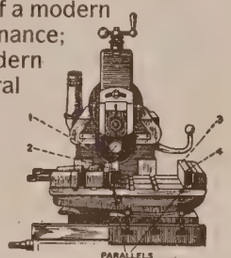
Fig. 3. Machining the top of the bracket.

Shapers

by Emanuele Stieri
reprinted by Lindsay Publications

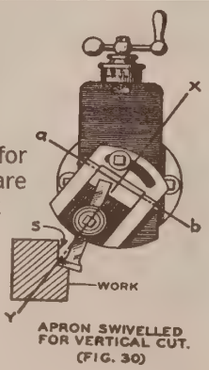
No doubt, Stieri produced this in 1943 to train machinists in the shortest possible time for war production.

Contents include classification and construction of shapers; shaper tools; holding the work; elementary shaper operations; the vertical shaper; elementary vertical shaper operations; description of a modern shaper; shaper maintenance; description of a modern vertical shaper; general description of the Pratt & Whitney shaper drive to the machine; and safety rules.



PARALLELS
TESTING THE WORK SET FOR PARALLELISM. (FIG. 26)

This little handbook (we've enlarged it from its original size) is quick and dirty. In chapter four, for instance, the sections are titled: testing the work seat; testing solid jaw for squareness; setting vise parallel with direction of stroke; selecting the proper tool; taking a horizontal cut; adjusting the work; adjustment of stroke; and on and on.



APRON SWIVELLED FOR VERTICAL CUT. (FIG. 30)

This not only tells you how to run a shaper, it does it quickly and clearly. You get a how-to book that is easy-to-read. If you have a shaper, get a copy of this. Or if you intend to build Gingery's shaper, this a must-have companion book. Excellent. Get a copy. 4 3/4 x 7 softcover 180 pages

No. 21460 $9.95

Indexing

reprinted by Lindsay Publications

Most of this booklet from 1903 covers indirect compound indexing.

You'll learn about construction of the indexing mechanism, calculating runs of the index crank, selecting the index circle, using the sector, using index tables, calculating the moves for compound indexing, and simplifying the moves.

The second section covers the use of the spiral head which at that time was an innovation marketed by Brown & Sharpe.

A final section covers fractional indexing using two indexing plates and special spiral head. Three more pages of indexing tables are provided.

Some of the information should be quite useful to you. Some will not, but even so, what you learn should expand your knowledge to allow you to make more creative use of the dividing head you do have. Loaded with valuable info! Reasonably priced! Get a copy today 5 1/2 x 8 1/2 booklet 31 pages

No. 869 $4.00

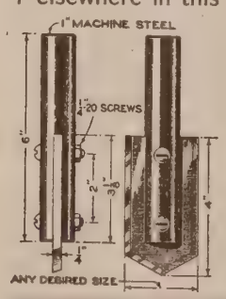
POPULAR MECHANICS

Drilling and Thread Cutting Handbook

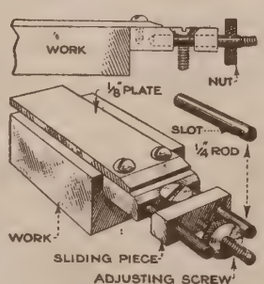
reprinted by Lindsay Publications

"A compilation of 301 experiences in the drilling of metal and the cutting of threads, showing not only how to use drills, and taps and dies, but how to make devices for special requirements in this work. With 298 illustrations."

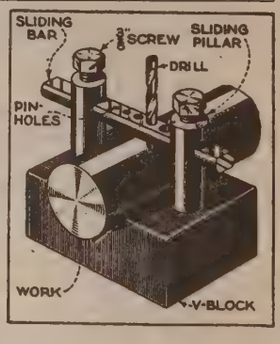
If you've seen PM's Lathe Handbook No. 1 elsewhere in this catalog, then you know what this is. It's a 1925 companion text compiled from short articles that had run in previous issues of Popular Science magazine.



Articles are broken into nine categories: 58 articles on special methods for handling drilling and boring jobs, 75 articles on special tools and devices for drilling, 31 articles on how to make drill bits and boring bars, 23 articles on ideas on drill presses, 22 articles on special methods of reaming and broaching, 18 articles on methods and devices for thread cutting, 15 articles on taps and how to handle them, 16 articles on dies and how to handle them, and 43 articles on unusual drilling and thread cutting jobs.



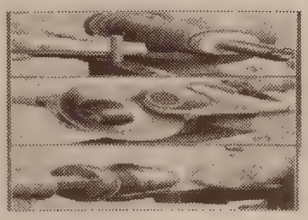
The very first article describes boring large holes in glass. But you'll also learn how to cut oil grooves in pulleys, how to locate holes where a scriber can't be used, how to make a moveable table for the drill press, how to build a rapid jig clamp, how to make a homemade flexible shaft boring machine, and much, much more.



I'm sure a lot of this stuff is practically useless. So what? Even if you never use anything in this book, the short stories and dynamite illustrations will keep you entertained for hours! Great stuff. Definitely worth having. Order a copy! 6x9 softcover 94 pp

No. 21117 $7.95

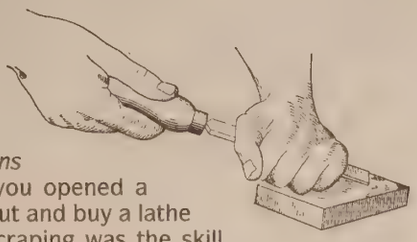
Getting the Most Out of Your Lathe



edited by Sam Brown
reprinted by Lindsay Publications

A Delta publication from the 1930's! The wood turning section covers the lathe and equipment, spindle turning, faceplate and chuck turning, special turning operations, jigs and fixtures, using lathe attachments, more! The metal turning section covers equipment for metal work, operations in metal turning, miscellaneous metal operations. Special section on turning delivers spinning equipment, methods of working, and special spinning chucks. Lots of ideas. Well illustrated. And low cost. Get one.
6x9 booklet 48 pages
No. 22008 $5.95

Old Time Mechanics



reprinted by Lindsay Publications

Back in the 1700's when you opened a machine shop, you didn't run out and buy a lathe and planer, you built them! Scraping was the skill necessary to produce absolutely flat and true beds and tightly fitting bearings. It was a skill that every mechanic learned, yet today few people have even heard of it.

Scraping is used on the machines described in the Gingery series of books. Scraping is also the secret method used by Whitworth to produce large surface plates accurate to millionths of inch two centuries ago! It is a very valuable skill. The first half of this booklet deals with the surface plate and scraping.

Also reprinted are instructions for lapping, grinding valves and joints, making shrink fits and force fits, and for balancing pulleys, cutter-heads, and emery-wheels.

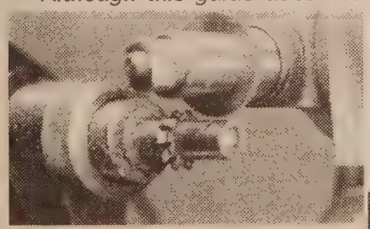
Get a copy! Learn about these old-time skills. This information is fast becoming lost technology. 5 1/2 x 8 1/2 booklet 15 pages
No. 855 $3.00

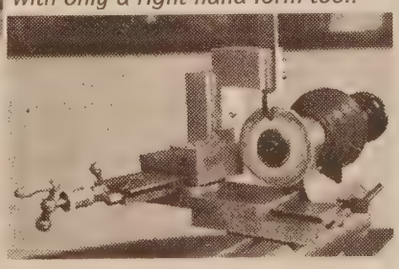
Tool Grinding Attachment

by Robert Porter

"This guide offers a simple solution to the complex problem of generating a very precise radius and clearance angle on a lathe tool bit to be used to form the profile of gear cutters and the like. While this attachment is designed for use on the watchmaker's lathe, it can easily be adapted to larger lathes.

Although this guide does not get into gear design, it does show you how the form tool can be used to make three different types of contant profile gear cutters – an arbor mounted multi-tooth cutter, a collet held multi-tooth cutter, and a fly cutter – all of which can be made with only a right hand form tool."



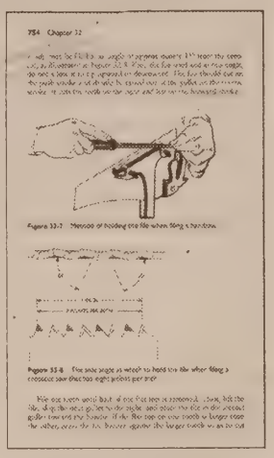


Porter is a clockmaker, so his lathe and his tools are small. But the results are very big. This small, brief, but heavily illustrated booklet will show you how to build the attachment. One photo shows him cutting teeth in a gear cutter, and in the next, using that cutter to make a six leaf clock pinion. It's all about making tools.

Great solid info from someone who has done it. From the guy who gave us "TINY DRILLS". Consider this carefully. 5-1/2 x 8-1/2 booklet 20 pages
No. 1522 $4.95

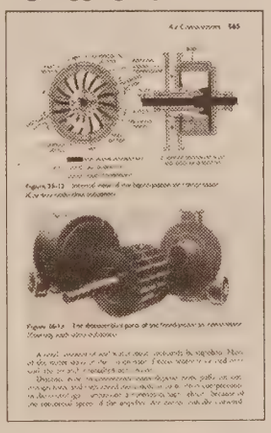
Audel's Millwrights & Mechanics Guide 5th Ed

by Davis & Nelson



Knowledge is like Swiss cheese. There are lots of holes in our knowledge. And most of us have more holes than cheese. Plugging those holes is fun for those us with even a little initiative and a few brain cells. Here's a book with a lot of info you already know, but it's so big and covers so much you're sure to find useful data when it comes to building machines. You can plug a lot of holes with this book.

Chapters include drawing and sketching, basic tools box, portable power tools, stationary power tools, measurement, screw threads, mechanical fasteners, machinery and equipment installation, bearings, principles of mechanical power transmission, shafting (cylindrical metal shafts, not the IRS), flat belts, V-belt drives, chain drives, gears, couplings, gaskets and packings, lubrication and oil analysis, vibration measurement, preventive maintenance, electricity, AC motors, fans and blowers, pumps, air compressors, pipe fittings, pipe valves, structural steel, sheet-metal work, welding, sharpening saws, wood fastening, carpentry, blacksmithing, rigging, hydraulics, mensuration and mechanical formulas.

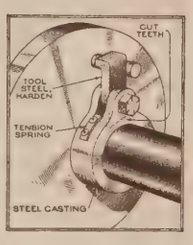


If you've seen Machinist's Handbook, you know it's primarily lists of specifications for every nut, bolt, and alloy available. Similarly this covers everything under the sun, but is not so much specifications as it is practical material. It's about choosing sprockets and the basic method of checking alignment. How to install seals, sharpen any one of a dozen different saws, using batter boards and a plumb bob, adjusting taper roller bearings, using a feeler gauge for finding a soft foot while mounting a motor, and on and on.

If you're dreaming about building or modifying a machine and wonder if you can belt drive it or replace the bushings with ball bearings, this is the place to start. It will throw the basics at you in sufficient detail to determine if the idea is worth pursuing. This is a whole encyclopedia of how-to information that we need and appreciate.

Expensive, but it's worth having. A great book to have handy. It's the first place you look before moving on to highly specialized texts. I like it. Consider it carefully. 5-1/2 x 8-1/2 softcover 1123 pages
No. 1570 $50.00

Lathe Handbook No. 1



by Popular Mechanics
reprinted by Lindsay Publications

Great book! You get a compilation of metal lathe articles that ran in the pages of Popular Mechanics magazine prior to 1925. Great ideas and the illustrations are even better!

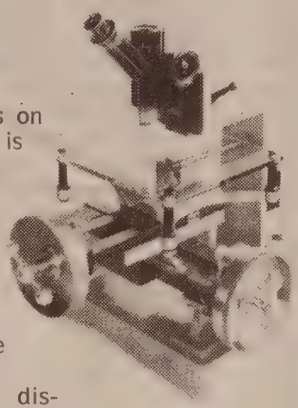
Page one starts with a detailed article on building a 6" bench lathe. Then you get dozens and dozens of smaller, well-illustrated articles describing a simple chip shield, auto hub as lathe and drill press, special lathe tools and attachments, lathe tool for radius cutting, simple relieving attachment for the lathe, and more. Learn how to make a tool holder with a set of cutters, a revolving tool holder for the lathe, a lathe center-hole mandrel, ball-bearing tailstock center, adaptable jig for turning pulleys in a lathe, and on and on. Build a adjustable universal chuck. And there's much more – from straightening a bent reamer to milling flutes in taps and reamers.

Any machinist will enjoy just looking at the incredible illustrations. You'll like it! It's inexpensive, and definitely worth having. Order a copy! 6x9 softcover 87 pages
No. 20838 $7.95

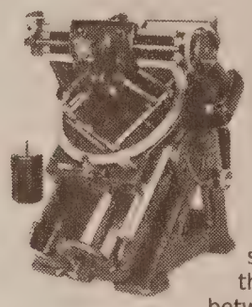
THE DESIGN AND USE OF

Instruments and Accurate Mechanism

by TN Whitehead
reprinted by Lindsay Publications

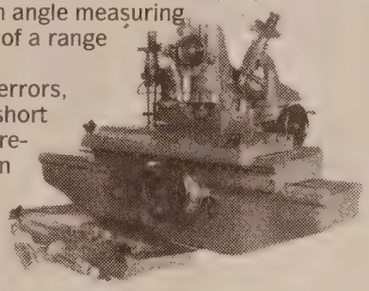


For most of us just cutting threads on a quarter-inch rod with a 1/4-20 die is precision machine shop work. Those off-center drunken threads are good enough for our experiments, but won't do if we want to build a micrometer. Eliminating errors to create precision is what this book is all about. (And the systematic errors that enter into a micrometer design are among the very first topics discussed.)



Errors are discussed in a cross-slide movement that are fairly obvious to you and me. Then the discussion goes into the effects of uneven friction and the problems that creep in from the drive train that will drive that cross-slide.

Some of the examples of mechanism discussed are the Hilger photomeasuring micrometer, the Wimperis accelerometer, systematic errors in an assay balance, bias in the short period errors of a goniometer, relation between disturbing and restoring agencies in a nut and screw, centering errors in angle measuring equipment, design and accuracy of a range finder, and much more.



Chapters include: systematic errors, probability as applied to errors, short period errors, and erratic errors, precision kinematic design, precision semi-kinematic design, stiffness and isolation of elements, accuracy, and the planning of an instrument.

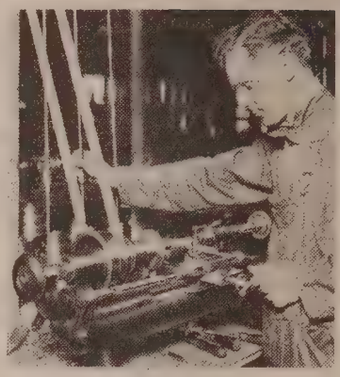
Very unusual book for the purist, or those of us who dream of becoming a precision machinist. From 1934. Some math but not much more complicated than high school trig.

A quality book. Consider it carefully. 5-1/2 x 8-1/2 softcover 283 pages

No. 22857 $16.95

Modern Toolmaking Methods

by Franklin D Jones
reprinted by Lindsay Publications Inc



Another great collection of articles from Machinery magazine from 1915 and earlier. We first reprinted this book more than ten years ago but did not print more when we ran out. Now it's back.

Learn how to use buttons to precisely locate holes, use disks, accurately divide a circle, generate a large index plate and more.

Learn secrets of lapping — a form of hand grinding that creates ultra fine finished metal surfaces. Learn about taps for internal and external work, a method of using a flat lap, charging laps, rotary diamond lap, and more.

Chapter three will teach you how to make and use forming tools for metal. Then you learn to make accurate threading tools, grind threads on taps, test the lead of a thread, and solve problems with thread chasers.

Chapter six will show you how to make a precise straightedge, surface plate, season cast iron and steel, flute angular cutters, sharpen end mills, make reamers and taps and much more.

Another chapter covers the use of a bench lathe for precise work while another chapter goes into micrometers, gages, sine-bars, depth gages and other precision measurement techniques.

These are all short articles, straight-to-the-point, easy to read, and most are well illustrated. The photos are somewhat "muddy". The lousy early photographs didn't reproduce as well as I would like, but they're acceptable.

Good book. Loaded with hints and tips. Plenty to learn. If you didn't get copy years ago, now's your chance. In another three of four years, it may be gone again. Get one while you can. 5 1/2 x 8 1/2 softcover 309 pages

No. 4724 $14.95

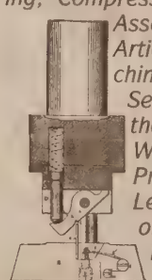
Punches Dies & Tools

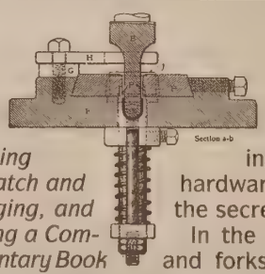
FOR MANUFACTURING IN PRESSES

by Joseph V Woodworth
reprinted by Lindsay Publications

That nasty big ol' block of type on the title page tells it like it is...

An Encyclopedia of Die-Making, Punch-Making, Die-Sinking, Sheet Metal Working, and Making of Special Tools, Devices and Mechanical Combinations for Piercing, Punching, Cutting, Bending, Forming, Drawing, Compressing, Embossing, Forging and Assembling Metal Parts, and also Articles of Other Materials in Machine Tools – INCLUDING – Special Sections Illustrating and Explaining the Making of Cartridge Shells, Wire and Bar Steel Drawing Dies, Press Tools for Making Hydraulic Leather Packing, the Making of Paint and Chemical Tablets, Manufacture of Pens, Pins and Needles, Jewelry and Eye-Glass Die-Making, Spoon and Fork-Making Dies, SubPress Die-Making for Watch and Clock Work, Drop Dies, Drop Forging, and Ornamental Die-Making. This Being a Companion Volume to the Authors Elementary Book Entitled "Dies, Their Construction and Use for the Modern Working of Sheet Metals" [which was available from Lindsay Publications until a short time ago.]





Woodworth wrote articles for American Machinist Magazine on a regular basis starting around 1900. This, apparently, is a compilation of the best of those articles being the fourth edition from 1931. Some material goes back before 1907.

When I think of punches and dies, I think of gigantic presses turning out automobile fenders, but the truth is that much smaller systems give us such inexpensive items as angle mending plates and deadbolts available in hardwares stores. In other words, these are the secret workhorses of mass production.

In the early days if you wanted spoons and forks, you would probably cast them from pewter. Later, they were punched and formed from sheet metal using dies like those described here.

So if you need to make rims for those custom eyeglasses you're put on your horse, or cartridges for that 30-30 rifle you're going to use on him if he doesn't stop leaving road-apples all over your front lawn, then get a copy of this heavily illustrated volume.

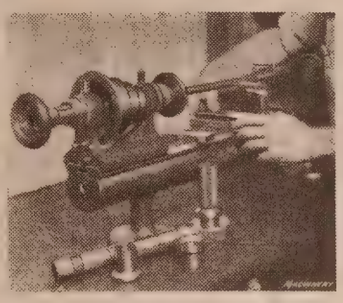
Great technology from simpler times. A bit expensive, but you get a big book that delivers. Get a copy! 5-1/2 x 8-1/2 softcover 538 pages

No. 22822 $23.95

MACHINERY'S INDUSTRIAL SECRETS

Bench Lathe Manufacture & Hand Scraping

reprinted by Lindsay Publications



In this series of articles reprinted from Machinery Magazine about 1921 you get details on how precision bench lathes were quickly and accurately built. You'll walk through the Potter and TLM factories in England and see beds being milled, headstocks being bored and aligned, bearing cones being ground, dovetails being milled and much more.

These articles were written for other manufacturers and reveal jigs, fixtures, and procedures that circumvent problems, improve accuracy, and increase production rates. You get tips, innovations, and industrial "secrets." You get page after page of photos of components being machined and the setups used.

You also get a short but beautifully illustrated article on handscraping, used not only for fit but for decorative effect as well. These eight pages are worth the price of the booklet alone.

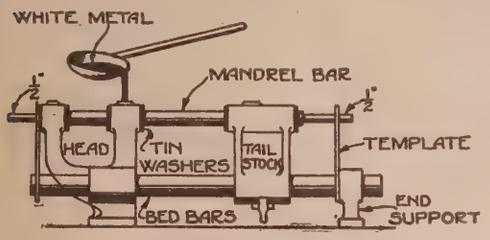
Entertaining and educational. Get a copy!
5 1/2 x 8 1/2 booklet
48 pages
No. 22164 $5.95

Lathe Work for Beginners

by Raymond Francis Yates
reprinted by Lindsay Publications

If you have a copy of Yates:Model Making that we've offered for years, you'll have a good idea of what this is about.

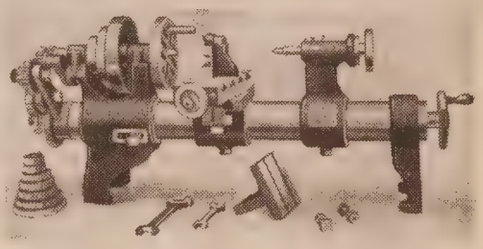
A bit more than half the book is about the basics of lathe work as it was practiced in 1922. But then you get some info that is rarely seen elsewhere: how to build a small metal lathe, a small wood lathe, and a model gun.



Chapters include: choosing a lathe, setting up and driving the lathe, the lathe and its parts, lathe attachments and their use, measuring tools and their use, a lesson in metal turning, advanced lathe work, screw cutting, wood turning, metal spinning, building an amateur's metal turning lathe, building a simple wood turning lathe, and how to build a model rapid-fire naval gun.

It's a fun book to read – loaded with illustrations of lathes, tools and attachments. You probably know how the lathe is used, so the how-to is really too basic for us. There are better instructional manuals in this catalog, but this book is still fun.

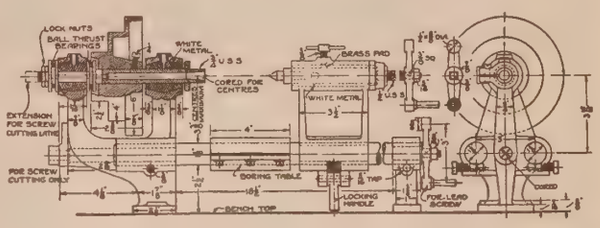
I like the lathe plans. Of course, the text is far too short, but the drawings are interesting. 6-3/4" throw over dual tubular bed, ball thrust bearings with Babbitt bearings. Castings are needed. You can turn those out in aluminum, or cast iron if you have a cupola, or perhaps you could have someone cast the patterns in iron for you.



The wood lathe is a simple but interesting machine capable of rotating 6-1/2 cylinders over the bed.

And the gun plans are based on a more-or-less standard 6" naval gun used by the Americans and the French. The model has an 8-1/4" length barrel and fires a .25 calibre center fire bullet. This ain't no toy. You could kill someone, maybe even yourself. Rapid fire here means a quick loading breech gun, not a machine gun.

Interesting book. Plenty of information to have fun with. (Or to get yourself into trouble with if you're truly stupid.) Yates produced some very interesting books eighty years ago. You need this fun book. Order a copy today! 5-1/2 x 8-1/2 softcover 240 pages
No. 22962 $15.95

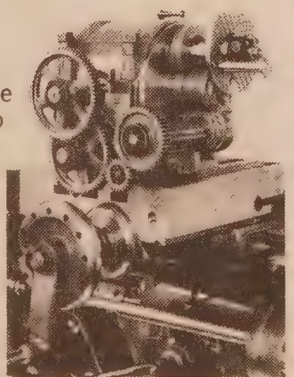


Shop Theory

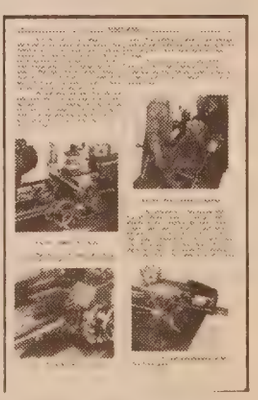
by Henry Ford Trade School
reprinted by Lindsay Publications Inc

"Eliminating all non-essentials, this book gives you a quick working knowledge of the basic tools, machines, and instruments, and the fundamental operations of machine shop work. It tells you how all the machines and tools used were developed, how they are constructed, and how to operate them. It explains heat treatment and gearing. It includes the mathematics needed for shop work, and stresses safety rules. Every step of machine shop work is pictured clearly both in text and illustration. An industry-developed shop course which already has helped prepare thousands of men for payroll jobs."

This book started out as mimeographed sheets, but so many people wanted copies that the school published the notes as a book. By the time this edition was release more that 150,000 copies had been distributed to schools all over the country. And it no doubt helped win World War II.



This is the entire '42 edition typewritten, loaded with drawings and photographs. Chapters include decimal equivalents, formulas, small tools, rules, micrometers, vernier gages, chisels and chipping, hack saws and sawing, files and filing, soldering, shop review, drills and drilling, tapers, threads, gearing, cutting tools, shaper, planer, lathes, turret lathes, milling machine, gages and gage blocks, heat treatment, abrasives and grinding wheels, grinding machines, and routing of bench tool work.



This is a gem. There are many machine shop books on the market. Although this edition was abandoned by Ford, probably being replaced by something more modern, it is still one of the best books of its type around.

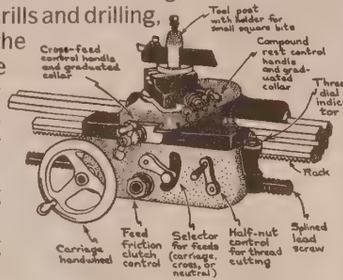
Need a good basic machine shop book? Get this one. You'll like it. 8 1/2 x 11 softcover
267 pages
No. 20064 $19.95

Machine Shop Methods

by Lorus J. Milne
reprinted by Lindsay Publications

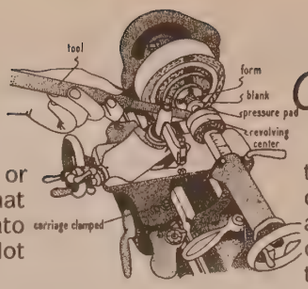
When Dave Gingery first showed me his copy he commented that he thought this was the best beginner's book he had ever seen. And I agree. It's good.

Chapters include shop machinery, drawings and specifications, handwork related to machining, the lathe, turning work between centers, work supported chiefly by the headstock, outside machining, inside machining, threads and thread cutting, drills and drilling, the drill press, the shaper, the miller, the grinder, holding the workpiece: a summary, other shop machines, useful tools and fixtures, gears and gear cutting, cutting speeds and finish, accuracy in machining assembling machined parts, processing and finishing metal, materials, and more.


Tool post with holder for small square bits
Compound rest control handle and graduated collar
Cross-feed control handle and graduated collar
Thread dial indicator
Rack
Carriage handwheel
Feed friction clutch control
Selector for feeds (carriage, cross, or neutral)
Half-nut control for thread cutting
Splined lead screw

Most of this you will read once or twice. Once you have an idea of what the topic is all about, you can dig into more-complex texts. It sounds a lot like Dave Gingery teachings.

What's really grabbed my eye in this volume is chapter 17 with its complete dimensioned plans for tools and fixtures. You can build a cleaner for chuck threads, faceplate clamp, faceplate angle bracket, draw-in collet attachment, spindle-nose cap, collet closer, collet, micrometer carriage stop, external-internal threading tool, heavy-duty boring bar, heavy-duty boring-tool holder, centering indicator, dividing fixture, lathe boring



Includes Complete Plans!

table, cross-feed chuck and collet holder, spherical turning attachment, cutaway tailstock center, drill-countersink holder, tailstock die holder, tailstock stover attachment, taper-shank drill driver, perforating die set, simple forming die set, drill-angle tester, fly cutter for the drill press, and auxiliary table for the drill press. Now think of it this way: When you buy the book, you get each plan for less than a dollar a piece, and the rest of the book is thrown in for free! Not a bad deal, I'd say.

Certainly worth having. A book that has been an essential part of the Gingery library. Get your own copy! 5 1/2 x 8 1/2 softcover 376 pages
No. 22237 $18.95

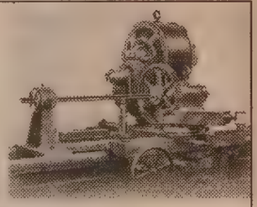
Handbook for Drillers

by the Cleveland Twist Drill Co.
reprinted by Lindsay Publications

Learn about the parts of a twist drill, tips on grinding or sharpening, correct feeds and speeds, tips on drilling hard materials, brass, and use of cutting compound. Chapter 5 covers common errors and their results, including broken tangs, how to "drift out", using a lead hammer, warming high speed drills before using, and more. You'll find tables of feeds and speeds for drills from the tiniest numbered drill to 3" dia. drills with Morse taper shanks. Plus, several pages of advertising promoting Cleveland Twist drills, reamers, counterbores, end mills and more.

From 1925. Order a copy! Inexpensive! You'll like it. 4-1/2 x 8 booklet 48 pages heavily illustrated
No. 20056 $3.95

Deep Hole Drilling



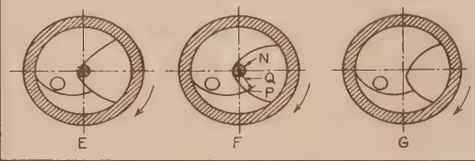
articles from Machinery Magazine

Yes, you can now drill a hole, straight and true, all the way to China. Well, almost.

You get a complete reprint of Machinery Reference Series Booklet No. 25 from 1910 and two later articles from Machinery Magazine.

Part one covers the basic problems of deep hole drilling using twist drills, flat drills, getting chips out, errors in drill sharpening, number of desirable edges and so on.

Next, you learn how the big boys could accurately drill out a cannon barrel and then bore it using a forged gun-steel boring bar over 61' long and 11" in diameter. Other examples are discussed.



The final topic covers the construction of deep hole drills needed to drill out spindles of machine tools and axles of steam locomotives. Obviously, we don't need to drill castings or forgings this large, but the principles hold. And these primitive methods really did produce remarkably precise machines and armament.

Finally, two articles from Machinery Magazine of the 1920's discusses how an mistake created a remarkable result while boring shotgun barrels, and how one machinist made a drill bit to cut a 9/32" hole more than 15" deep.

Old stuff. Interesting stuff. This is the way the oldtimers did it, simply and accurately. Get a copy. 5-1/2 x 8-1/2 booklet 48 pages
No. 22580 $5.95

Strength of Materials

by J P Den Hartog

Every mechanical engineer studies strength of materials. Has to. Just like a doctor has to know anatomy.

From the back cover:

"Among introductory texts on the strength of materials, this work is particularly distinguished. It was originally developed by Professor Den Hartog to meet the needs of engineering students at M.I.T. for a sound yet lucid first course in strength of materials. As such it has also enjoyed wide popularity in engineering schools throughout the world.

But the book was remarkable in a number of other ways, so that it has become one of the favorite refresher and reference works for engineers as well as a popular self-study text. Perhaps the chief reason for this is that in addition to all the customary elementary material on the subject (i.e., clear introductions to the fundamentals of tension, torsion, bending, compound stresses, deflection of beams, etc.) it also contains a considerable amount of more advanced material concerning methods of great practical value to working engineers which are not usually included in introductory texts. This material is presented in starred sections (which may be omitted on a first reading without interrupting the flow of the presentation)...

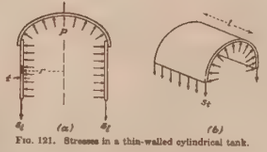


FIG. 121. Stresses in a thin-walled cylindrical tank.

Other material not usually found in elementary texts but which are frequently of great value to the practicing engineer are the discussions of the statically indeterminate truss, reinforced concrete, plastic deformations, thick-walled cylinders, thick curved bars, Maxwell's Reciprocal Theorem, and photoelasticity."

If you're building a machine, a bridge, or a building, it's important to know if the components are strong enough to carry the load without failing. But why make them any bigger than necessary? That's expensive and heavy.

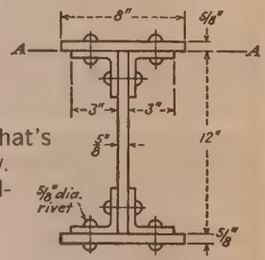


FIG. 42. Section built up of flat plates and angles riveted together.

A few simple calculations can greatly ease the design process for you. A pocket calculator and a fraction of the knowledge in this cheap book can mean the difference between knowing what you're doing or just being a brute-force-and-ignorance designer. You'll find some calculus here, most of which can be easily ignored if that troubles you.

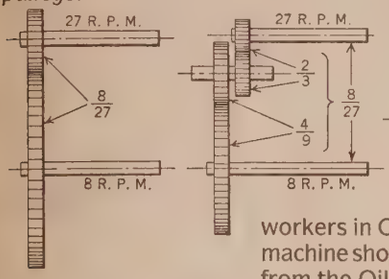
This was published in 1949, but geez... the author even goes into using strain gauges. And if you don't know what they are, YOU DO have a lot to learn! Get started. Good book. Low price. Get one.
5 1/2 x 8 1/2 softcover 323 pages
No. 1501 $12.95

Screw Cutting and Change Gears

TWO BOOKS IN ONE

by William Simpson (1887) and Machinery Magazine (1935)

You get "Manual of Screw Cutting" 4th edition (1887) "containing rules for calculating the change gears on screw-cutting lathes to cut square and angular threads per inch or per pitch, with two or four gears. Also, useful rules for calculating the diameters and speeds of pulleys."

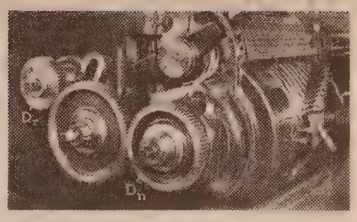


This is the kind of small vest pocket booklet I'll bet the workers in Osborne's machine shop (Echoes from the Oil Country) probably carried with them. People back then often didn't finish grade school. So little books like this helped them calculate the gear ratios they need to cut threads.

Topics include how to cut a thread without reversing or stopping the lathe, how find two gears, how to cut fractional threads, how to measure fractional threads, how to find the set required on a screw cutting tool, how to find the diameters of pulleys, how to prove four gears, strength of tapping holes, how to cut double or treble threads, and more.

We enlarged the pages and removed as much of the dirt and water stains as our software would allow. The result is useful, entertaining, and easy to read.

Then you get "Change-Gears" from 1935. "Calculating auxiliary change-gears for cutting special threads or pitches not within the range of the regular quick-change gear-box – A method of utilizing various settings of the gear-box to avoid using special auxiliary gears."



You get change gear formulas, examples of calculations, compound gearing for thread cutting, number of threads per inch cut with given combination of change-gears, change-gears for metric pitches using English lead-screw, when the lathe has a metric-lead screw, translating gears for metric pitches, and more.

Although this booklet talks about millimeters and threads-per-inch, I could find nothing on threads-per-cubit. So beware!

Useful. Cheap. Get a copy! 5-1/2 x 8-1/2 booklet 48 pages

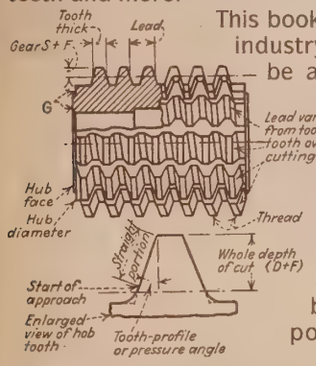
No. 22890 $4.95

Gear Cutting Practice

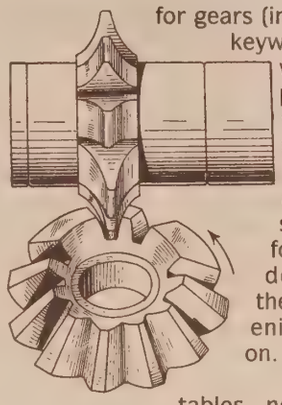
by Colvin & Stanley

reprinted by Lindsay Publications

Chapters include gear cutting practice, spur gears and circular cutters, shaping method of cutting gears, helical and herringbone gears, hobs and cutters, bevel gears, worms and worm gears, internal gears, heat treatment, burnishing, shaving, lapping and grinding gear teeth and more!



This book was written for industry so there will be a lot of material you can't use. Better to too much info than not enough. You'll get an education in gear geometry, the best alloy compositions to use for gears (in 1937), specs on keyways, using the dividing head, comparison of hobbing versus milling gear teeth, commercial hobbing machines available, vertical shapers designed for cutting gears, details on hobs, their use and sharpening and on and on.



You get charts, tables, nomographs, photographs, drawings, and more. It's heavily illustrated. You're sure to learn something. Get a copy! 5 1/2 x 8 1/2 paperback 344 pages

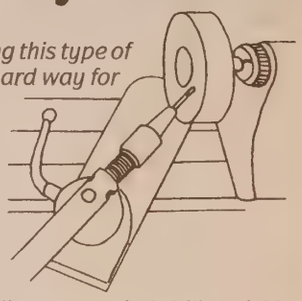
No. 20889 $14.95

HOW TO

Make Tiny Drills

by Robert Porter

"...After making this type of drill by hand the hard way for over 40 years to repair and restore antique clocks and watches, I've developed a simple method to make tiny (down to 0.004" diameter so far) drills quickly, easily and accurately."



You get a brief, nicely illustrated booklet that will show you how to make tiny spade drills from high speed steel and tungsten carbide. Here's the straight dope from someone who knows what he's talking about. Good stuff...

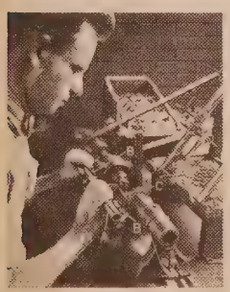
5 1/2 x 8 1/2 booklet 16 pages

No. 1409 $3.95

MACHINERY'S INDUSTRIAL SECRETS

Precision Lead Screws, Gears, and Pantographs

articles from Machinery Magazine reprinted by Lindsay Publications

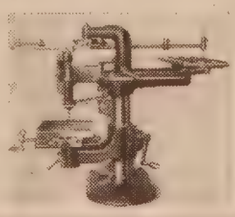


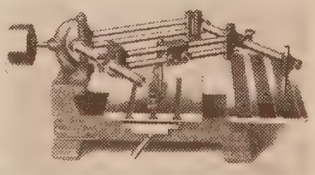
Knuckleheads insist you must have a lathe in order to make a lathe. If that's true, then how was the first one made? Similarly, you don't need a precision master screw to cut another screw thread. Someone must have made the first precision screws from scratch. How was it done? Holtzapfel reveals some techniques. Maudsley made his own two hundred years ago.

You'll learn the secrets of making precision screws for scientific instruments including preparation, cutting, recutting, and especially the lapping that removes residual errors. This is same technique documented in a classic Amateur Scientist article in the 1950's. And the lap is similar to the 1000 threads per inch Merton nut mentioned in the 1930's in an article in the Review of Scientific Instruments. Great stuff for the precision fanatic. But be prepared to make measurements with an interferometer!

Another article will show you how a 4 foot lathe leadscrew was cut having only 40 millionths of an inch error across the entire length!

Also learn how small gears and pinions for clocks, water meters, etc where mass produced just after WWI. You may not want to make hundreds of gears, but the basic techniques are interesting, and the ideas useful.





And if you've ever considering building a pantograph engraving machine, you'll like this article from the early 1920's. You'll see many different machines, each with its own application and benefits. You'll see drawings of bearings, cutters, sharpeners, layouts and more. You also get a photo and a brief mention of a pantograph capable of die milling and making three dimensional copies. Best material I've found so far for designing your own pantograph engraver.

Heavily illustrated. Same fascinating quality.

5 1/2 x 8 1/2 booklet 48 pages

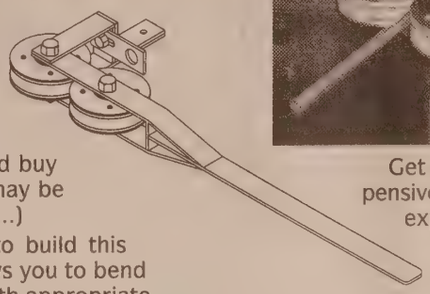
No. 22326 $5.95

HOW TO BUILD A

Pipe Bending Machine

by Vince Gingery

Bend pipe and make bedframes, chairs, handrails, and just about anything else your twisted imagination can cook up. This easy-to-build and inexpensive machine will bend up to 1" diameter pipe using hardwood dies. Need something bigger? Scale it up, make the lever arm longer, and buy a gorilla (your mother in law may be just as ugly, but not as strong...)



Vince will show you how to build this very simple machine that allows you to bend pipe from zero to 180°. And with appropriate dies you can bend solid round rod, flat bar, and square tubing as well.

The whole thing is built from 1/4" x 2" hot rolled steel strap. Other than a drill press and welder (just a few beads needed) only common handtools are necessary.

Get a copy of this inexpensive book and build this inexpensive project. Gee... You could even learn to bend electrical conduit and get rid of those 38 extension cords running all over your shop! Build a rack, and torture your inlaws! The possibilities are endless.

Another quality Gingery publication. Get one. 5-1/2 x 8-1/2 booklet 48 pages
No. 1468 $8.95

BUILD A

Metal Lathe

by Ben Fleming

You can build a precision lathe without castings that has almost a 10" swing over the three foot bed. And you can do it with little more than hand tools and a small drill press. A 3' bed provides about 22" between centers, but the bed can be extended several feet if you want. Four speeds are provided on the prototype. You get a compound rest, and a cross slide with about 4 1/2" of travel.

Ben writes in his manual, "No outside machining is required. The lathe is bolted together for all parts but three, which are brazed or welded together . . . The only 'precision' tool I used in the lathe construction was a good quality framing square. Using the construction methods as outlined in these plans, I was able to produce a lathe that, on its first test, showed only a .007 error, and with a few simple adjustments, can be brought close to a tolerance of .001."

Cost of the prototype was $185. One of Fleming's design tricks is the use of large truck pistons instead of castings.

You get a detailed 49 page construction manual. You'll get recommendations, step-by-step instructions, hints and tips, as well as addresses of suppliers for tools and any special parts that you might need.

There is no provision for power feed on the lead screw, and therefore, this is not a screw-cutting lathe. But by the time you build a copy, you might have figured out an ingenious way to add it. Even so, this is a powerful, precision lathe that can turn out quality work for you.

Following the text are many photos and layout templates to make the construction fast and easy. Consider building one.
8 1/2 x 11 softcover 49 pages
No. 1212 $13.95

BUILD A

Metal Disintegrator

by Ramah Machines

Essentially this is an vibrating engraver driving a commercially available electrode into the metal. An electric spark eats away the metal, leaving a clean hole. A great machine to remove broken taps. Ever try to drill one out? Good luck!

The disintegrator is built from commonly available materials. A lathe or milling machine is not required. You get details on assembly of the vibrating head, electrode selection, fabrication of water flow device, details on using an arc welder as the power supply, and much more. The prototype cost $275.00 with new equipment, and that's a lot less than $7000 for a commercial unit.

Again, if you don't need a disintegrator, the ideas and info here should be useful in investigating ECM concepts. Very unusual device. Small but excellent booklet. Worth its price.
8 1/2 x 11 booklet 34 pages with photos and drawings.
No. 1277 $10.90

A Money Maker!

Mr. Lindsay:

I built Benjamin Fleming's metal disintegrator and use it often. I work as an automotive machinist and broken bolts are an occupational hazard. I still drill them out. (When you're good, you're good.) But those that clumsy mechanics have broken off – taps, drills and (the notorious) easy-outs – are no longer beyond salvage. I fire up the "tap burner" and before you can say "thanks, Mr. Fleming", it's out. I then get to say "that'll be $25.00", which is half the going rate, and split the take with the boss. So far, this machine has paid for every book I have gotten from you and I hope to make it build a much bigger library...

J. I., Fort Worth TX

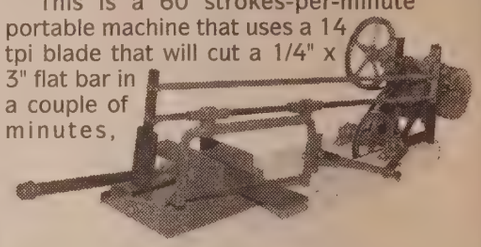
BUILD A

Power Hacksaw with Vise

by Vincent Gingery

Dave wrote me some time back, "Vince has demonstrated that a reduction belt drive is adequate. And he has somehow worked out the geometry so that the blade lifts on the return stroke without any additional mechanism. It is impressive to watch his machine stroke the blade smoothly through a slab of steel. And it does it accurately and in good time too."

This is a 60 strokes-per-minute portable machine that uses a 14 tpi blade that will cut a 1/4" x 3" flat bar in a couple of minutes,

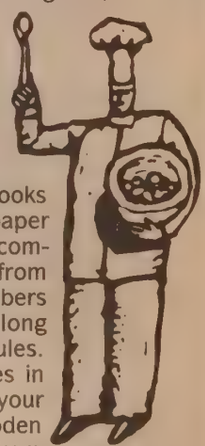


yet weighs little more than 50 pounds. You'll need a 1/3 hp 1725 motor. Standard pulleys, belts and pillow blocks reduce the drive to 278 rpm. The only special equipment necessary is a 100 amp welder. All holes are drilled and tapped, so a drill press would be a great help, although not essential.

This is a Gingery-quality manual. You won't find better how-to anywhere. And this is a proven machine. Build one! Order a copy.
8 1/2 x 11 softcover 66 pages
No. 1312 $8.95

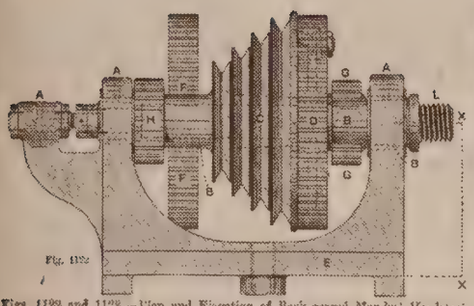
All Lindsay Books GUARANTEED LOW-CARB! (not)

Are you or someone you know part of the low-carb diet mania? Yes? We have good news! All Lindsay books are printed on low-carb paper. So if you're trying to lose weight, just tear pages out of any Lindsay book and eat 'em. If you're really into the high fat, low carb routine, just sauté pages with minced garlic and scallions in a little butter and 10W-30. Enjoy! (Caution: eating Lindsay books may cause terminal constipation.)



The truth is all Lindsay books are printed on genuine paper which, as you know, is composed of cellulose fibers from softwood trees. Cellulose fibers are poly-saccharides – long chains of glucose molecules. In other words, the pages in our books, the timbers in your house, or struts in your wooden leg derive their strength from sugar molecules. And sugar is a carbohydrate.

Isn't that amazing? Lindsay books have more sugar in them than a chocolate cake!



Figs. 1122 and 1123.—Plan and Elevation of Back-geared Mandrel Headstock.

PAUL N. HASLUCK'S 1906 CLASSIC

Metalworking

Tools, Materials, & Processes

Every metal worker must have a copy this. This is top rate. Full tilt. I've never seen anything quite like it. This 1907 American edition of "Metalworking" has 760 pages and 2,206 illustrations covering just about anything you would want to do to a chunk of metal.

This covers so much I don't know where to begin. Under "foundry" you'll learn about building Faraday's blast furnace, a gas injector furnace, a brick-built furnace, an oil furnace, crucibles, flasks, sands and on and on.

"Smiths' Work" is not about the farrier's trade, but about decorative iron work – making beautiful iron flowers, gates, plant stands, fireplace firedogs, brass fire screens, fireplace fenders, and a score of other Victorian blacksmithing projects. You get descriptions of the tools and anvil, of course, but you'll also find an interesting bending jig. The smithing chapter alone has 274 illustrations!

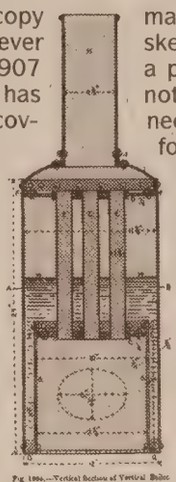
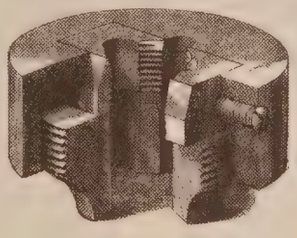


Fig. 1006.—Vertical Section of Vertical Boiler.

And on it goes: files, scrapers, buffing wheels, annealing furnaces, hardening and tempering equipment, drills, boring bars, and much more. You'll learn about the torches, bellows, furnaces, hearths for brazing and riveting.

The chapter on forging is more what we consider blacksmithing today: the basics of manipulating iron by heating and hammering.



The sheet metal chapter is a gem. With 177 illustrations you'll learn to make everything EXCEPT ventilation ducts. You make a small oil cook stove with oven, a deed case, a "coal vase" (decorative coal scuttle) , a sizeable traveler's trunk, a drainer, a square copper tea kettle, and much more. Incredible!

Once you've spent a life time learning all of this, you can begin repousse: the decorative embossing of sheet metal. You can make decorative picture frames, lock plates, canopies for fireplaces, and more.

You get brass work, discussions of lathes and their tools and use (237 illustrations here alone!), metal spinning techniques and projects, tool construction, and on and on.

You'll be shown how to the build the treadle-driven 4-1/2" lathe with a 4' 6" bed complete with headstock, tailstock and slide rest. This chapter could be a book in itself, and I don't know where you'll get the castings unless you make them yourself.

After you make some jewelry, you can make a simple eight day, 18" high skeleton clock. Its mechanism includes a pendulum and fusee. The plans are not dimensioned and discussion is necessarily brief. But there IS enough for a clock fanatic.

Fortunately there is much more detail when it comes to building the horizontal steam engine. With a 2" bore and 4-1/2" stroke at 50 psi, you're should get 1/4 hp off the 16" flywheel. Great stuff!

The vertical steam engine can be built on a 3 1/2" backgeared lathe, and generates 1/4 hp at 60 psi, 300 rpm and a cut-off at 5/8 of the stroke. The 1 1/2" diameter piston travels 2-1/4" on each stroke. You get loads of dimensioned drawings. And this is a governed engine, too.

Build three different boilers. You can build a model horizontal boiler 13" long and 7" in diameter. Or fabricate a small vertical boiler 24" tall and 12" in diameter that can generate 1/4 hp of steam. I don't want to be around when you decide to build the 8 hp boiler that stands 8' tall with 4' stack on top of that. This mother is 3 1/2' in diameter, is riveted, and looks like more than I would ever want to tackle.

Build a gas engine with a 2-1/2" piston and 2 1/2" stroke. This 1 1/2 hp air-cooled engine weighs about 25 lb and is suggested for use on a bicycle.

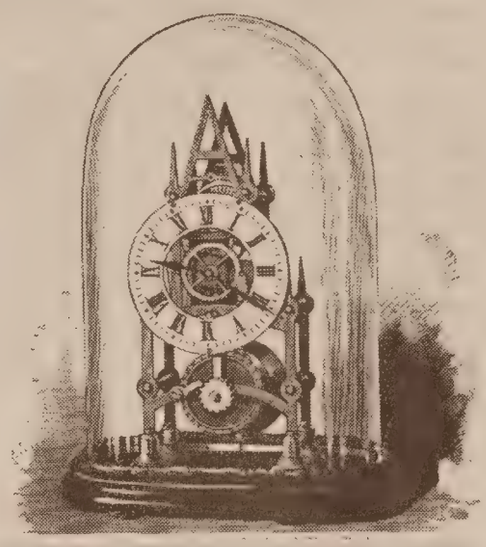
The 18" diameter water wheel will develop 1/4 hp at 30 psi and as much as 3/4 hp at 90 psi.

The dynamo/motor will generate or consume 50 watts of power.

You'll find talk about silver, copper, and gold plating and brass gilding in the electroplating chapter. The wire working chapter is incredible in that you will learn how to make fancy wire screening of different lattices that we, today, think can only be made by machine. After you make the electric bell, you can make a brass stand microscope, and a four-draw telescope with an erector for terrestrial viewing (a "must-have" for all would-be pirates...).

Again, anyone who works metal must have a copy of this. The ideas in here will fire you up. You'll really like this. Top rate. I can't say enough about this one. Get a copy. 6x9 hardcover 760 pages 2,206 illustrations

No. 21265 $34.95



"Every shop bird should order a copy of this one. And if he's dumb enough to lend books, he should order two or more copies because few people would return this one..." – Dave Gingery

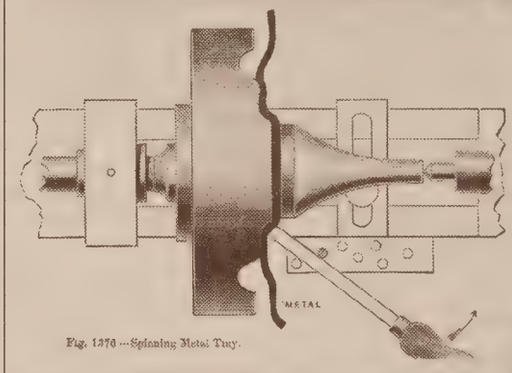


Fig. 1270.—Spinning Metal Tray.

Contents:

• foundry work • smiths' work • surfacing metals • polishing metals: the machines and processes • annealing, hardening, and tempering • drilling and boring • taps, screwplates, and dies • soldering brazing and riveting • forging iron and steel • working sheet metal • repousse work • oriental decorative brasswork • finishing, lacquering, and coloring brass • lathes and lathework • spinning metals on the lathe • tools for measuring and testing metalwork • building a 4 1/2 in. centre lathe • gilding and silver working • making a skeleton clock • building a small horizontal steam engine • making a 1/4-hp vertical steam engine • boiler making • building a petrol motor • making water motors • building a dynamo and electric motor • electroplating • wire working • electric bell making • making a microscope and telescope.

Build Your Own Metalworking Shop From Scrap!

Build a COMPLETE machine shop! You build the lathe, shaper, milling machine, drill press and more! These are not toys. These are harding working precision machines. Tens of thousands of these books have been sold over the last two decades!

Let "Mad Machinist" Dave Gingery show you how

to build a complete machine shop from scrap!

Dave has proven that you can start with simple handtools and can build precision machine tools. First, you set up a simple foundry and pour castings to build a lathe. You then use the lathe to build the shaper which will cut the dovetails, T-slots, and gears for the milling machine. Next, you build the drill press. Finally, you can go back and build the accessories you need for your lathe and other tools: dividing head, screw-cutting gears, chucks, and lots more. A handy sheet metal brake is thrown in for good measure.

As you build each machine, Dave teaches you new skills in foundry, mechanics, and machining. When you're done, you end up with a complete machine shop that you have built, you can use expertly, and you can repair should something go wrong. And best of all, you're a pretty darned good machinist.

I've never seen a series of books like this. Dave's books have become metal working classics, and Dave has become a cult hero. If you haven't seen his books, then you have really missed something. And it's time that you did something about it!

PACKAGE PRICE!
"Build Your Own Metalworking Shop from Scrap"

ALL SEVEN GINGERY BOOKS:
Charcoal Foundry, Lathe, Shaper, Drill Press, Milling Machine, Deluxe Accessories and Sheet Metal Brake! Save $6.70

No. 929 $59.95

NOTE: Package counts as three books when calculating shipping and handling

1 - The Charcoal Foundry

by Dave Gingery

You can melt aluminum, pot metal, and even brass with a very simple home built furnace fueled with grocery store charcoal. All you need is an old metal 5-gallon pail, about a few dollars worth of fireclay, some sand, a hair drier or vacuum cleaner and this book to build a high temperature furnace. One man built the furnace itself for about $7. The blower, cords, a pipe for a crucible, and the rest cost a few dollars more, but I can't imagine that the whole set up being more than $25 - probably less if you're a good alley picker.

After making a pattern, I rammed up a mold with sandbox sand and fired up the furnace. In went the crucible around which I placed about 75¢ worth of charcoal briquettes. Into the crucible went an old electric iron, a couple of pistons and an old accordion (well... maybe not the accordion). After skimming off the dross, I poured the 1400 F metal into the sand mold. About 20 minutes later, I had a face plate casting for a small lathe.

Dave Gingery shows you how to melt aluminum with charcoal!

You'll need this simple furnace to make the castings you need for the machine tools you will build using Dave's other books. So get started. Simple. Inexpensive, but so powerful a tool! Highest recommendation! Tens of thousands sold! Top rate! Get a copy. 5 1/2 x 8 1/2 softcover 80 pages

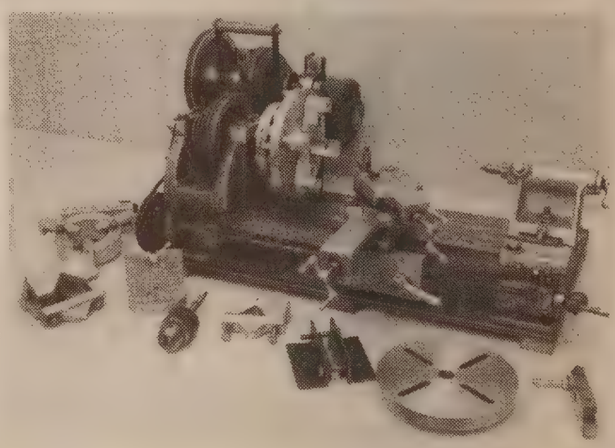
No. 163 $7.95

2 - The Metal Lathe

by Dave Gingery

Build a sturdy, precision metal cutting lathe for much less money than you'd pay for one of those "toy" lathes on the market. The only precision measuring equipment you need is a feeler gauge. You DON'T need any machine tools. In fact, Dave built the two prototypes for less than $50 each just a few years ago!

Your lathe will have a 7" swing over the bed, about 5" over the saddle, with 12" between centers. You can bore the headstock spindle and tailstock to No. 1 Morse taper if you wish. You can scale it up but you'll need larger castings than the charcoal foundry can provide.



Large 7" capacity! Precise to 1/1000" No Precision Tools Needed for Construction! Low Cost!

I had a chance to use one of the prototypes. After a pass across an 8" long steel bar, my micrometer showed a taper of less than .001". Not bad for a $50 homemade lathe!

Castings from your charcoal foundry are the secret of building a quality lathe. The only tools you need are an electric drill, files, and other handtools along with a very simple homemade disc grinder fully described in the book. A table saw is very handy for making patterns, but not absolutely essential.

You will use this simple lathe to build the metal shaper, milling machine, drill press, and the fancy accessories. You get no chuck or screwcutting gears. Dave will show you how to build them an much more in the book on deluxe accessories. They make life easy, but Dave will prove that they're not absolutely essential.

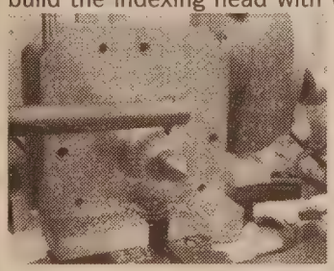
Can't afford to buy a lathe? Then build one. It doesn't take much money, just lots of hours. And just think of the bragging you could do! Order a copy today! 5 1/2 x 8 1/2 softcover 128 pages heavily illustrated.

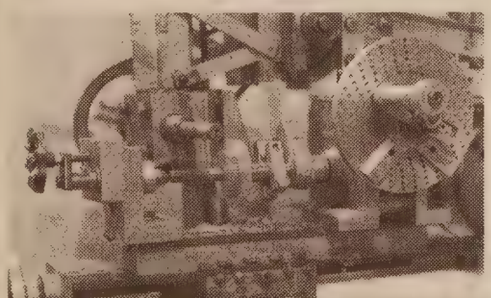
No. 177 $9.95

Build a Gingery Machine Shop Step-by-Step!

First, you build the foundry. With it you melt aluminum to pour simple sand castings. This is an inexpensive but extremely powerful way to control metal quickly and easily. You can then create the custom castings needed to build each machine tool.

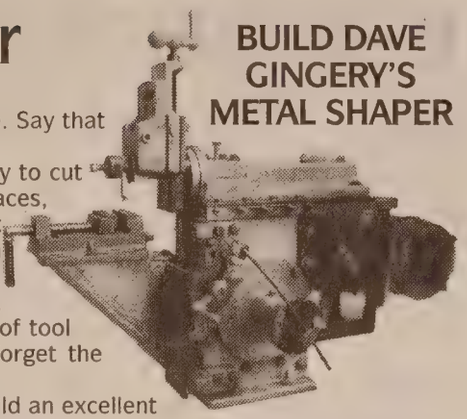
Next comes the lathe. And with it you machine the parts for the shaper. Next, you use the shaper to cut dovetails and splines to build a milling machine. After that, you build a powerful drill press. Then as a last step you build the indexing head with which you cut gears to allow you to cut threads with your lathe. And a sheet metal brake is thrown in for good measure!





(above) Cutting gears in the milling machine with the homemade indexing head. No expensive gear cutters are needed. The result is a complete set of change gears to allow thread cutting on your homemade lathe!

3 - The Metal Shaper



by Dave Gingery

You may have heard that shapers are obsolete. Say that to someone who owns one! I dare you!

Truth is, there is hardly a cheaper, quicker way to cut keyways, splines, gears, flat and angular surfaces, dovetail slides, irregular profiles and more. Most of this can be done on a milling machine, but often the milling machine must use an expensive cutter. A shaper, for instance, can use a 50¢ piece of tool steel to cut gears. Forget the expensive cutters.

5" x 5" Capacity
6" Stroke
Versatile!
Powerful!

You can build an excellent metal shaper with a 6" maximum stroke and a mean capacity of 5" by 5". The tool head rotates through 180 degrees for angular cuts, and features a graduated collar with a simple lock. The down feed has a graduated collar, and the exact stroke length can be set. Your shaper will have variable speed, automatic variable cross feed and adjustable stroke length. It will be a machine worth bragging about.

You get all the pattern plans, all the secrets, and all the details. You'll need the charcoal foundry and Gingery's metal lathe or its equivalent. Like Gingery's other books, this one is jam-packed how-to. Great book! Order a copy of this classic! 5 1/2 x 8 1/2 softcover 144 pages, heavily illustrated.

No. 187 $9.95

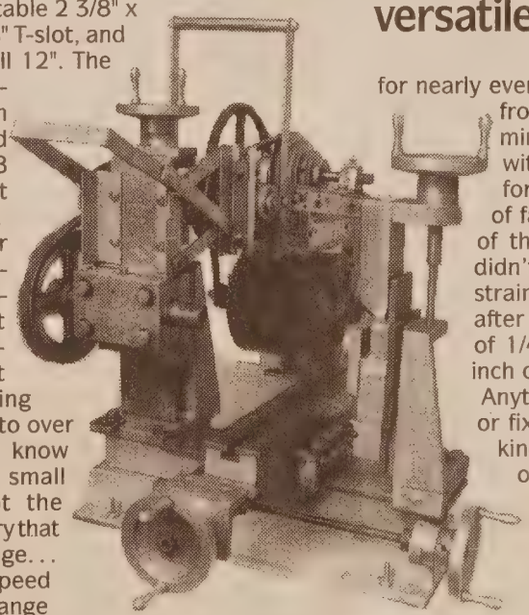
4 - Milling Machine

by Dave Gingery

Dave can tell the story best:

"It's a horizontal miller, but it has the full range of vertical mill capability when used with the angle plate on the work table. Home shops will find a horizontal mill and a shaper to be not so nearly obsolete as the "experts" say, and even the smallest shop would soon outgrow one of those little toy vertical mills.

Build a powerful, versatile milling machine!



The work table 2 3/8" x 12" with a 3/8" T-slot, and it travels a full 12". The carriage travels 6 1/2" with the tail stand in use, and 8 1/2" with it cleared away.

It took over a month to design the transmission, and it works beautifully! Eight speeds ranging from 43 rpm to over 2430 rpm. I know of no other small miller except the Dore-Westbury that has such a range... The highest speed in the low range is 270 rpm, and it made a .035" cut in the end of the compound with the face mill set at a 3" diameter at that speed with no squawk or chatter.

I made the cutter on the lathe, but the miller is designed to make its own cutters for nearly every purpose. This cutter adjusts from 2 1/2" to 4 1/2". It's an aluminum casting, and it was cast with a steel core to leave the slot for the cutter bit. It shows no sign of failure after planing off the end of the compound. The set screws didn't loosen, and the casting wasn't strained in the least amount. That's after several passes over a sandwich of 1/4" steel top and bottom, and an inch of aluminum between.

Anything is possible. It can make jigs or fixtures that are needed for any kind of work. It can make any type of style of cutter. You could even machine a blank or a Brown & Sharpe gear cutter, mill the lands, and grind the cutter right on the miller.

I'm really excited about this machine. It's much more that I thought possible when I began."

Build yourself a milling machine! Order a copy of this. It's worth twice the price.

5 1/2 x 8 1/2 softcover 160 pages

No. 1128 $9.95

5 - The Drill Press

by Dave Gingery

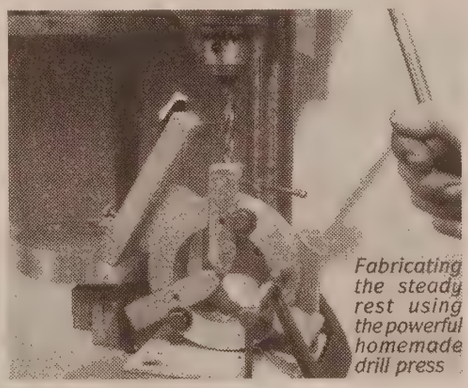
Build a professional quality drill press! It's a beauty! Dave describes it:

"I can't believe the capability of this machine. I put a 5/8" bit in the chuck, and it drilled through a 1/4" steel channel without a pilot hole. My wife said it looked like it was cutting cheese instead of steel.

Note the double reduction that gives a low speed of 260 rpm. That's why it can drill large holes in steel. I'm certain it can drill a 3/4" hole, and it may be capable of drilling up to a 1" in steel. I don't have a larger bit to test.

All of the small drill presses that I've seen have a low speed around 700 rpm. That means they only have a capacity of 3/8" in steel, even if they do have 1/2" chuck.

The spindle is mounted in ball bearings, and so is the countershaft for the double reduction. The driven pulley is mounted on a hollow shaft, supported by its own 1" ball bearings to run concentric with the spindle. No belt tension is transferred to the spindle.



Fabricating the steady rest using the powerful homemade drill press

The quill feed is 2 1/2", and it can be made longer. The quill is advanced by a unique cable winch mechanism. This is only a 1/16" cable, though it had ample strength to feed the 5/8" bit to produce a closely curled chip. It has provisions to adjust tension and backlash, which is very important for sensitive drilling with small bits at high speed.

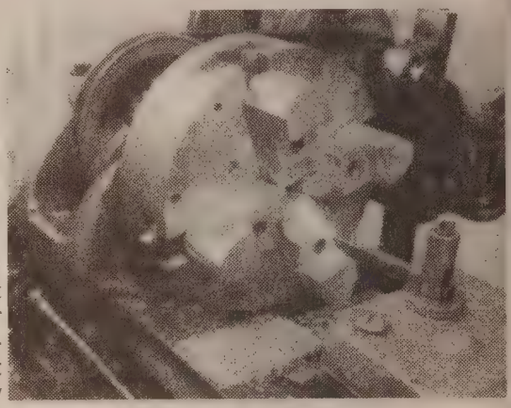
The machine in the manual is a 12". It can easily be scaled down about a third or smaller, and it can be scaled up to a hefty floor model with ease. None of the castings used the full one quart charcoal foundry capacity, and all of them were machined on the homemade lathe. Only the spline on the spindle was done on the miller."

Sure, you can buy a drill press. But you'll pay an arm and a leg for one that can match this performance. Building this one is worth the effort. Great book! Order a copy and get started.
5 1/2 x 8 1/2 softcover 128 pages illustrated
No. 1133 $9.95

6 - Dividing Head & Deluxe Accessories

by Dave Gingery

Now that you've built the lathe, shaper, milling machine, and the drill press at almost zero cost, it's time to build the fancy accessories.



Build simple tools: compact clamp dog, heavy face plate, homemade hand reamers, a set screw chuck, expanding and threaded mandrels for facing gear blanks and for cutting teeth, plus a simple fixture for tapping truly perpendicular holes by hand.

Build more complex tools: a simple two-jaw chuck that can be self-centering for repetitive work and a four-jaw chuck with independent reversible jaws, and a steady rest.

Build an Indexing Head, Face Plate, Steady Rest, Change Gears, Mandrels, Chucks, More!

Then, you'll build the dividing head that serves as a rotary table, too. This beauty is built around a standard 40 tooth worm gear, providing all divisions through 50 and all even and multiples of 5 through 100. Many other divisions up to 1960 are possible, and it's easy to make a special plate for an unusual job.

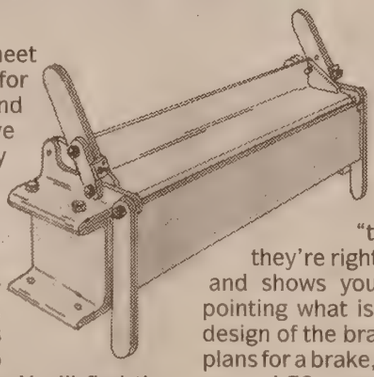
Next, you'll cut professional quality change gears to add screwcutting capability to your homemade lathe. Dave will show you how to make gear cutters for about 50¢ each! You'll get a conventional tumbler plate that provides left hand thread cutting, while the basic set of gears cuts all threads of standard inch sizes from 8 to 80 tpi. A fine feed range from .0025" per revolution to .005" is also provided. You even get a threading indicator for the carriage to simplify thread cutting on the lathe.

Incredible quality! Rare how-to! Order a copy today. 5 1/2 x 8 1/2 softcover 159 pages
No. 1153 $9.95

7 - Sheet Metal Brake

by Dave Gingery

Build a brake, and turn sheet metal into ducts, flashing for your house, boxes for tools and supplies — you name it. Dave told me he has built many brakes over the years some of which are still being used in industry.



You get far more than plans. Inside this 52 page paperback you'll find drawings, parts lists, how-to, dimensions and everything you need to know about building a brake. You'll find the plans scaled for an 18" wide machine, but you will also learn how people have been scaled it up to much greater widths. Dave will even show you how to use the brake to make common joints and bends. You'll need an arc welder to lay a few beads.

People have written to say "that's my kind of book." And they're right. Dave takes you by the hand and shows you construction step-by-step, pointing what is and is not important in the design of the brake. You don't often see good plans for a brake, let alone good ones. So order a copy! 52 pages
5 1/2 x 8 1/2 softcover
No. 161 $8.95

*"**I built a sheet metal brake** using Dave Gingery's book and am extremely happy with the results. I scaled it up to twice the size and added truss bars and a modification to the bending leaf that allows me to form right-angle ribs. I have about $100 in it and it is far superior to the $300 'home shop' units I have seen. They have screw-down holders for the clamping leaf, but the toggle levers on Dave's machine make any job ten times easier & faster! Thanks a million for the great books that you publish."*
–Bernie Kuschel

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Price and availability of any book can change at any time.

"Uncle" Dave Gingery's Shop Notebook 1

translated, deciphered and illustrated by Vince Gingery

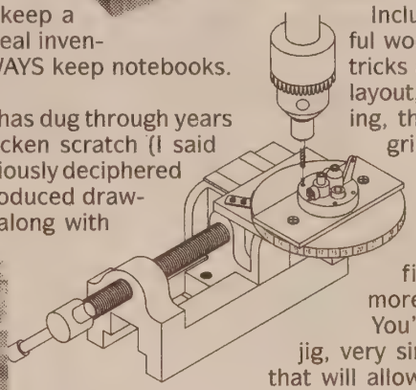
Yup. That Weeerd Dave Gingery guy over the years has accumulated a good many small hints, tips, tricks and projects in his notebooks that never made it into his famous machine shop series.

You, of course, DO keep a notebook, don't you? Real inventors and engineers ALWAYS keep notebooks. Very smart thing to do.

Here, poor ol' Vince has dug through years of the accumulated chicken scratch (I said "scratch") and has laboriously deciphered it, built the projects, produced drawings and photographs along with text that makes sense.

In effect, this is by Dave Gingery, but since Dave is too busy in his retirement sittin' in his easy chair drooling on himself, Vince has actually produced this small but useful booklet.

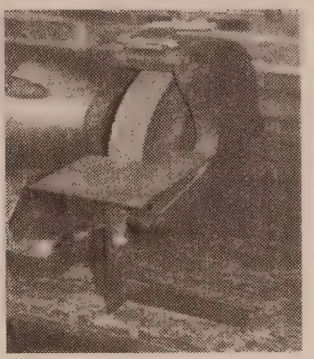
If you can't find just one useful idea in it, you're in real trouble. You must be brain dead!

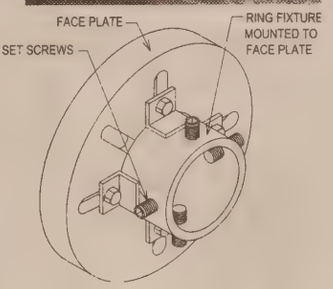


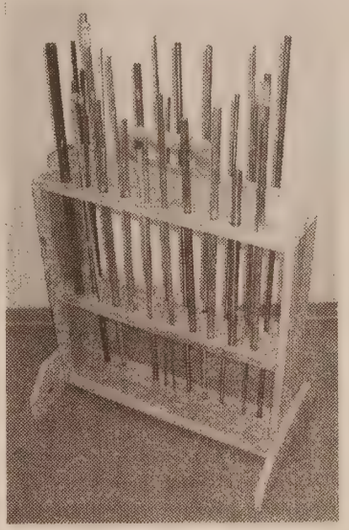
Included are plans for a truly useful wooden workbench and rod rack, tricks and advice on layout, drilling, reaming, thread tapping, grinding, holding square stock, sacrificial faceplates, making lathe fixtures, and more.

You'll find a great jig, very simple to build, that will allow you to grind lathe cutters at precise angles with a standard grinder. And Dave's notes on building a miniature rotary table and its use is worth the price of the booklet alone.

You'll see examples of how Dave overcame problems in finishing a head for a small engine as well as special jigs and tooling that have served him well over the years.





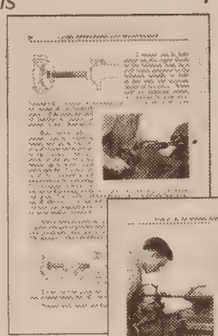


Discussions of each topic are short and to the point with the typical Gingery detail and illustrations. Great stuff. Worth having. More to come if Vince's eyesight holds up. Geez... the chicken scratch.... Scratch! I said scratch... 5-1/2 x 8-1/2 booklet 56 pages

No. 1528 $7.95

Running a Regal Lathe

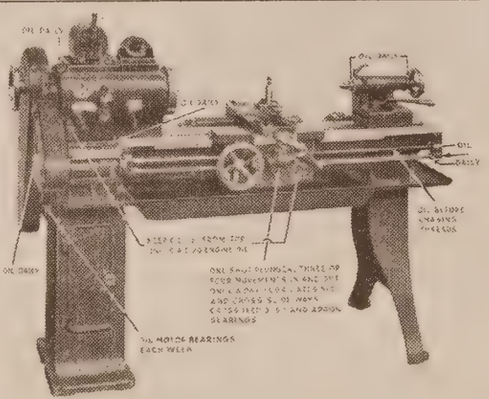
by the R.K. LeBlond Machine Co reprinted by Lindsay Publications



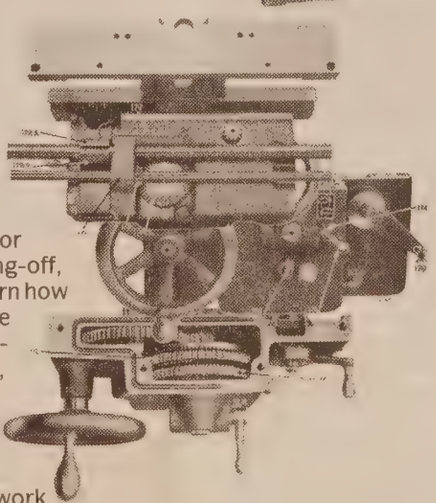
If, in 1943, you bought a Regal geared head engine lathe (and you probably couldn't have since they were needed for war production), you would have gotten this instruction book with it. Yes, it's very much like How to Run a Lathe by South Bend Lathe, and Running an Engine Lathe by Fred "Mr Machine Shop" Colvin, or Care and Op of a Lathe by Sheldon Machine.

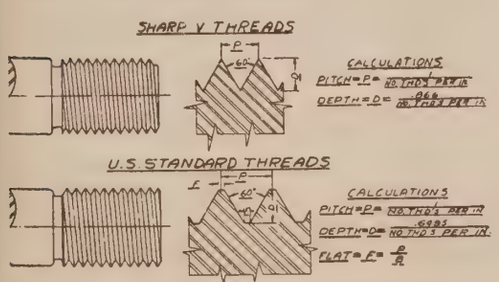
But this book is just a bit different. You'll see much the same information. After all, engine lathes are all very much a like. But you'll get inside information on the special features that were put on the machines that left the LeBlond plant.

You get basic info on setting up the lathe with levels, getting acquainted with parts, and the all the rest but you get photos and mechanical drawings of the headstock, reverse plate, quadrant, quick change mechanism, apron with power cross feed, and more.



You get useful details on adjusting the spindle and lubrication. You'll find surprising detail in the chapters on necessary tooling like dogs, chucks, and the use of calipers. And you'll find all the usual essential lathe info, again in sufficient detail, such as grinding tools for chasing, cutting-off, boring, and turning. You'll learn how to use the compound rest, the follow rest, the grinding attachment, micrometers stops, milling attachment, steady rest, taper attachment and so on.





You'll learn the essentials of cutting threads, mounting work on faceplates, in chucks, with angle plates and more. You get discussions on facing to length, filing, reaming, shoulder and radius forming, tapping, chasing threads, lapping, as well as tables of drill sizes, grinding fit tolerances, standard thread specs, cutting speeds and more.

Like the other small lathe manuals we offer, this provides much the same information. But it also delivers it in its own special way, and that makes it different. And worth having. The price is right. Got a lathe? Gonna get one? Then get a copy of this. You'll like it. 5-1/2 x 8-1/2 softcover 116 pages

No. 22997 $8.95

AMERICAN MACHINIST MEMORIES

Engines of 1899

reprinted by Lindsay Publications

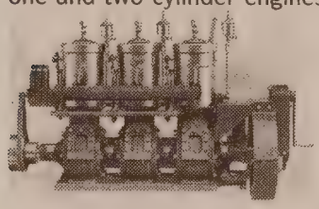
Fascinating articles on steam, oil and gasoline engines.

The first article, actually from late 1898, was a brief explanation of the Sturtevant Midget generator set. Interest was apparently so intense that in February 1899 American Machinist published dimensioned drawings of the steam engine and the electric generator that it drove. Its 2x2 cylinder could develop 3 horsepower at less than 200 psi steam pressure at 1000 rpm and generate 1.5 kw of electricity. Build one for your cabin in the wilderness!

Then you can visit the White & Middleton engine shops in Baltimore. See the machine shop and the testing room where one-lung engines with 4' flywheels are being tested. Visit the Springfield Gas Engine works in Springfield, Ohio. Visit the Springfield Gas Engine machine shop and assembling and testing room.

Tour the New Era Iron Works Company in Dayton and examine their huge 125 hp one-lunger. You'll see the jig used to machine balls for the governor.

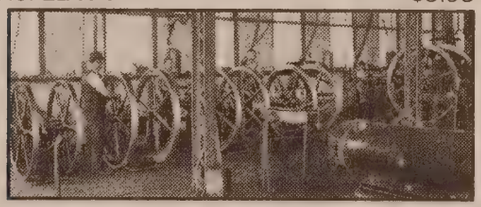
Check out the testing room and the boat shop of the Racine Engine company. See their one and two cylinder engines and reversible propellor. See the device they used to cut cams. Examine huge two-cycle Monarch marine engines and Secor's 6x9 kerosene engine.



Lots of photos and mechanical drawings. Great details for the builder, collector or engine historian. Get a copy!

5-1/2 x 8-1/2 booklet 48 pages

No. 22474 $5.95



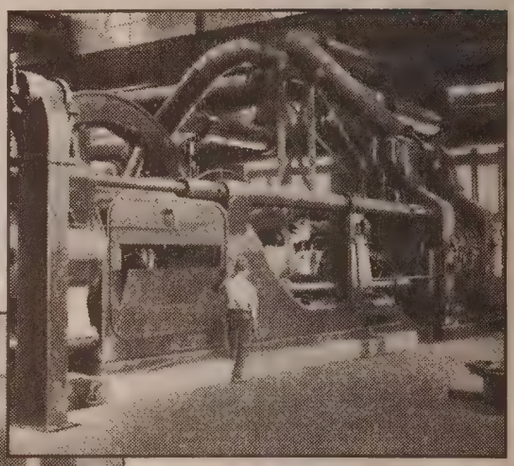
Large Gas Engines - 1909

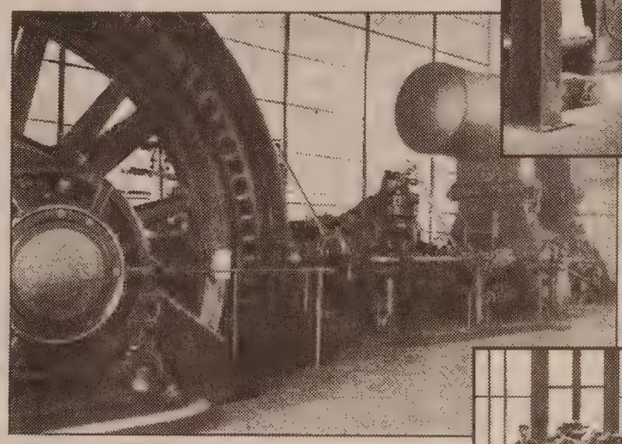
RECENT DEVELOPMENTS IN LARGE GAS ENGINE DESIGN

by Percy Allen, Cassier's Magazine
reprinted by Lindsay Publication

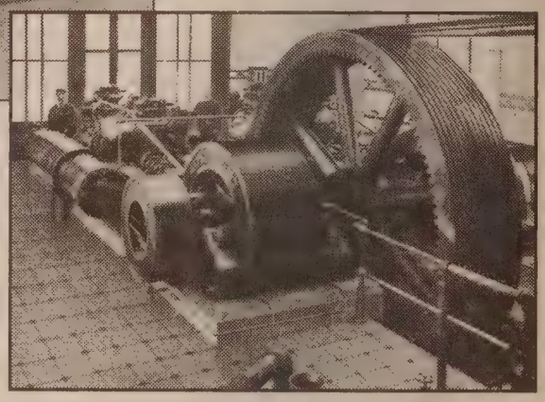
Yah, I know. Your idea of a big engine is that 7-1/2 cylinder smoke-belching piece of junk mounted in that rusted out school bus parked in front of your house that you keep telling the idiots next door is the world's largest SUV. But I've got news for you. It ain't nuthin...

The gas engines we're talking about here are BIG! Just one of the engines, for instance, has a bore of 42" inches with a stroke of five feet! Running at 50 to 75 rpm its job using its 3000 hp was to blow 50,000 cubic feet of air per minute into Carnegie blast furnaces in Youngstown! And if that's not enough, you'll see the room in which four of these monsters were housed.





MONSTER Gas Engines!



In the early days factories used waterwheels, and then steam power. By 1900 internal combustion engines and electric motors were starting to replace steam. The engines in these articles look like classic monster steam engines but actually burn fuel like carbon-monoxide producer gas byproducts from blast furnaces and coke ovens. Some burned water gas produced by a local municipal gas plant.

You get technical details on giant 2-cycle and 4-cycle IC engines in the US, Britain and Europe used for making steel, pumping water, turning alternators, and more. The three well-illustrated articles reprinted here revealed the state-of-the-art to power engineers in 1909. You get technical details about how sections were put together, how problems with wear were solved, what type of enormous spark advance was necessary to get any kind of efficiency at all out of an engine so large, the alloys used, etc.

You get scores of photographs and a fair number of drawings showing the working details. I have to wonder how long these engines operated before being replaced by much more efficient equipment. A model based on one of these designs would be unique.

If engines are your thing, you've got to see these machines. They're kind of like one-lungers on steroids! Reasonably priced. Get a copy.

5-1/2 x 8-1/2 softcover 64 pages.

No. 23098 $7.95

AMERICAN MACHINIST MEMORIES

Motocycles of 1899

articles from American Machinist Magazine
reprinted by Lindsay Publications

Moto-cycles. No "R" in there! This is about 1899 automobiles: the Orient Electric, the Oakman-Hertel wagon, the Tinkham two-cycle tricycle, and the Piper & Tinker Steam Wagon.

Next, William Harrison discusses basic auto design issues aimed at do-it-yourselfers. Then you get a fascinating article about Sylvester Roper and his steam driven racing motorcycles, including some revealing drawings. Roper started building cycles just after the Civil War (late 1860's), and didn't start his last one until after his 73rd birthday!

Then you get more design ideas, deails on the "Lifu" steam wagon built and operated in the Isle of Wight, on Riker's Electric Wagon, and on a Chicago built hybrid electric truck from 1899, built to move ten tons!

Investigate the Crouch steam wagon and the Dudgeon steam wagon, built and operated in the 1850's!

Bob Jorgensen built a steam motorcycle based on the plans of Roper's machine described above. Complete details and lots of color pictures can be seen on our website. See his incredible model engines, too!

You get a small, jam-packed booklet loaded with photos, drawings and technical details. Rare info. Build a moto-cycle!

5-1/2 x 8-1/2 booklet 48 pages

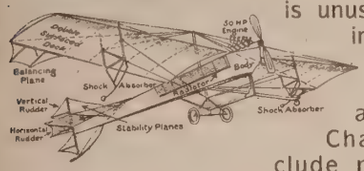
No. 22261 $5.95

Early Flying Machines

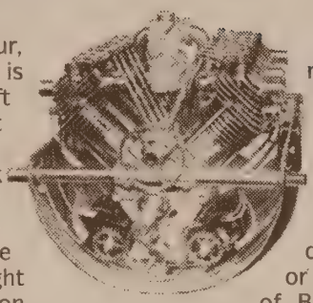
reprinted by Camden Miniature Steam

The Wright Brothers, Orville and Wilbur, (no! not Mo, Curly and Larry), flew what is considered to be the first successful aircraft about a hundred years ago. This booklet appeared a few years later in England.

Americans in their ignorance like to think they were first and are best in everything. But the British were and still are among the leaders in aviation technology. What you get here is unusual insight into aviation technology as it existed about 1909.

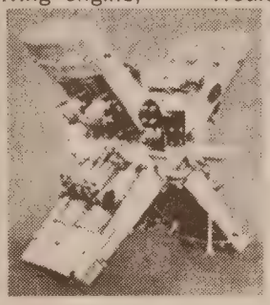


Chapters include mechanical flight and aerial navigation, theory and principles of the aeroplane, flying machines of to-day, aeronautical engines, construction of aeroplanes and aerial propellers, and dirigible balloons.



You get fascinating photos, drawings, and text revealing details of early technology like the three cylinder Azani engine, or the Gnome seven-cylinder revolving engine, or details of Bleriot's and Aintoinette's monoplanes, or the secrets of how the Wright Brothers warped the wings of their plane to control it.

This is a fascinating book because the technology is simple. It's something you and I could, no doubt, build. And although it's primitive by today's standards, these aeroplanes really flew.



Wouldn't it be neat to build an old biplane? And buzz the local farmer's livestock? At least until he got you in the sights of his shotgun?

Large booklet. Well illustrated. Unusual content. A must-have for aviation buffs. But worth having for those of us who appreciate the standard of living that machines like these have given us. Get a copy. 8-1/2 x 12 booklet 64 pages

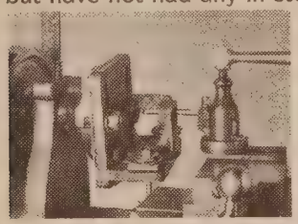
No. 1555 $13.95

Gas Engine Construction

by Henry V.A. Parsell & Arthur J. Weed
reprinted by Lindsay Publications

"A practical treatise describing the theory and principles of the action of gas engines of various types and the design and construction of a half-horse power gas engine with illustrations of the work in actual progress, together with dimensioned working drawings giving clearly the sizes of the various details for the student, the scientific investigator and the amateur mechanic."

We first reprinted this in the late 1980's but have not had any in stock for years. The last time Dave Gingery stopped by he tried to bum a copy off me. All I had was one file copy that I would never part with. So I thought it was time to reprint a few and offer it for the next couple of years.



Dave and I agree. It's not the greatest engine construction book, but it's the only one around. And this 1900 how-to book is definitely worth having. You'll be shown how to build a one-lung engine sporting a 2-1/2" bore and 4" stroke with a pair of nasty lookin' 14" flywheels.

You get all the info from foundry patterns, to making tooling for lathe set-ups, to machining the oilers, bearings, carburetor, hot-flame igniter and all the rest.

You get page after page of photographs of main bearings being drilled, side rods being turned, exhaust valve casings being bored, and more.

Chapters include how the gas engine works, the four classes of engines, design of a small gas engine, patterns, special tools, cylinder, piston, connecting rod, bearings, side rods, bed plate, fly-wheels and shaft, cylinder head, inlet valve, exhaust valve, clave gearing, governor, igniter and electrical connections, assembling, regulating and starting, carbureters, engine details & their design, and a bibliography.

Build an engine. Scale these plans down for a small lathe. Scale 'em up if you have a fork truck to move the castings around your shop. Neat book for the engine building crowd. Back for a while. Get one.

5-1/2 x 8-1/2 softcover over 300 pages

No. 4465 $13.95

Bentley BR2

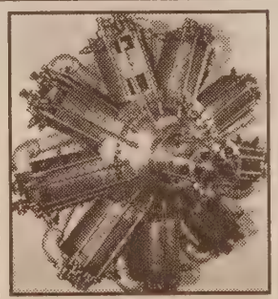
WW 1 ROTARY AERO ENGINE

by L K Blackmore

The backcover tells the story better than I can:

"This book contains a detailed account of the building of the one quarter full size working model of the famous Bentley B.R. 2. aero engine which came into prominence in the closing stages of World War I. It represented a substantial improvement in both power output and reliability. It was the last of the rotary engines, in which the whole engine rotated around the crankshaft, which in turn was secured to the airframe.

The model of the B.R. 2. described in this book was the successful result of an attempt to restore the design of this historic engine. No drawings of the full size engine have been discovered, and very few examples of the full size engine exist. The original model, built by the Author, won a Gold Medal at the 1981 Model Engineer Exhibition at Wembley, and the Duke of Edinburgh Challenge Trophy at the 1982 Exhibition. Since then two other engines, built from the published drawings, have won Gold Medals at subsequent Exhibitions. Others are under construction.



The great interest shown world wide in the Author's model led to the decision to publish a detailed description of the building, which includes all the fully dimensioned drawings, with over fifty accompanying photographs...

The descriptive portion taken from the official Air Ministry Handbook has been reprinted in the Appendix, with the kind permission of the Ministry of Defence. This book itself is now extremely rare and was considered to be well worthwhile incorporating."

This incredible book first appeared in 1986 and was brought back by Camden Miniature Steam in England in late 1996. If you want to knock the socks off the competition, you should consider building one of these. Excellent book loaded with rare information. Get one. 8 1/2 x 11 paperback 96 pages

No. 1421 $20.95

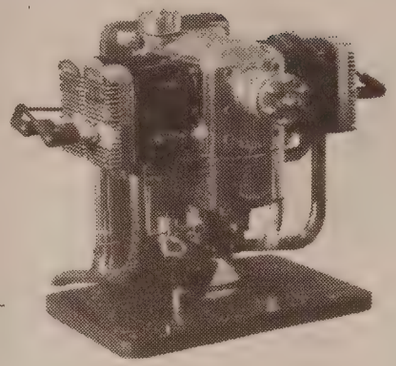
Building the Maltese Falcon

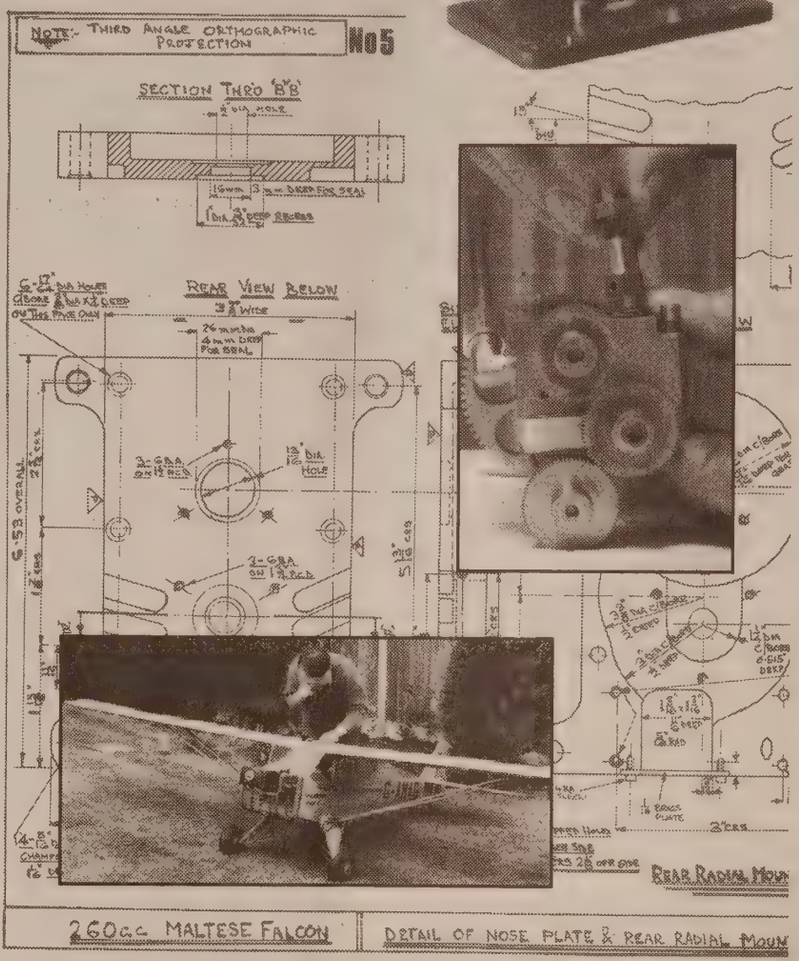
by Jim Shelley

"Full drawings and building instructions for a 260cc Flat Four I.C. Engine"

From the backcover:

"The Maltese Falcon is a 260cc Flat Four I.C. engine, designed to provide a power unit for Jim Shelley's 15' wingspan model high wing monoplane which sounded right, and turned a scale propeller at scale revs. One of the largest, if not the largest, model aircraft engine for which a design has been published, the Maltese Falcon is a powerful beast and could be adapted for a number of non aircraft uses.





It can be built entirely from stock material, although standard motorcycle pistons and valves can be used by anyone wishing to expedite construction, and a number of other parts can be purchased from suppliers listed. Whilst not a conventional blow-by-blow construction manual, this book contains numerous hints, tips and ideas to help construction, as well as many photographs of set-ups. The MALTESE FALCON makes an exciting and different project for any model engineer..."

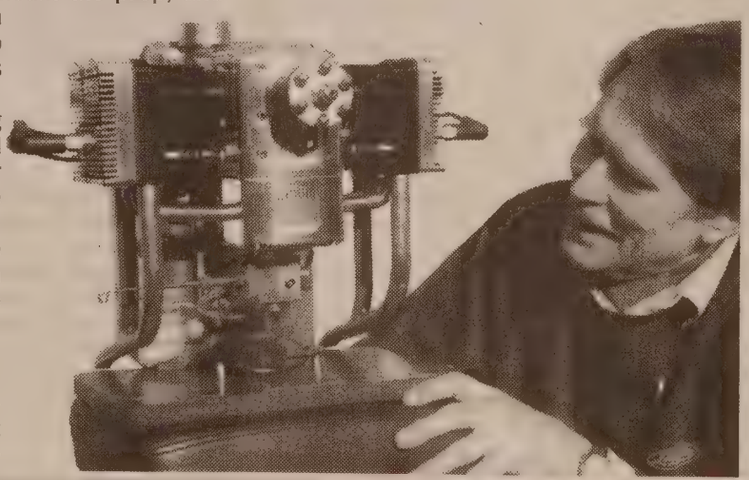
You do not get a step-by-step beginner's guide. Rather, this is a detailed report on how Stuart built his impressive engine. You get a spiral bound book loaded with photographs, and pages after page of fold-out mechanical drawings, including details on the 36" propeller.

This is a model with a 15' wingspan? Sounds more like an ultra-light to me! You could probably build the engine, mount the prop, and put the whole thing on a stand and use it to keep the flies off your in-laws (or other livestock).

This is something that the experienced engine builder (and/or dreamer) should have in his reference library. Knowing how someone else approached such a project and solved the inevitable problems can help you with your own designs.

From England. Consider it carefully. I don't know how long you'll be seeing it in this catalog. Good stuff! 8-1/2 x 12 spiral wire bound 32 pages with 11 double pages of drawings

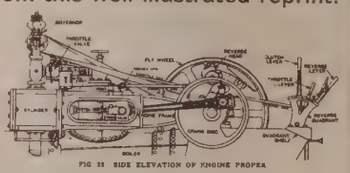
No. 1572 $32.95



Case Steam Engine Manual

by J. I. Case Co.

Learn to run a World War I Case steam traction engine from this well-illustrated reprint. Includes: fitting up and starting a new engine, the feed water, firing with various fuels, lubrication and bearing adjustment, handling the engine, the engine proper, the valve gear, the boiler traction gearing, and the compounded engine.



Learn how to use "gage" - or "try-" cocks, how to start a Penberthy injector and what to do if it fails to work, how to pack the waterglass, how to pack a gear driven injector pump, how to fire with low-grade coal and straw, how to adjust connecting rod brasses, details on rebabbitting main frame bearings and upper cannon bearing, and lots more.

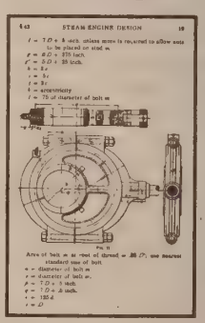
If you're into steam, get a copy of this. It's interesting and low cost. 5 1/2 x 8 1/2 booklet 70 pages

No. 1260 $6.00

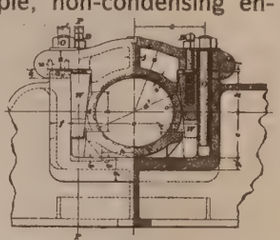
Steam Engine Design

reprinted by Lindsay Publications

Learn how to design a steam engine from an 1896 engineer.



You'll learn the basics: all the components, how they fit together, and how they work. Then you'll learn about the choices and tradeoffs that must be made concerning expansion, valving, boiler pressure, piston speeds and more. Then you start plugging numbers into the formulas to come up with back pressure and point of exhaust closure for simple engines and engines with single swinging eccentrics.



Investigate simple, non-condensing engines, high speed automatic cutoff engines, hoisting and locomotive engines, and multiple-expansion engines. Calculate in detail the proportions of the cylinders, steam ports and passages, dimensions of the steam chest and more.

You will learn secrets and techniques that haven't been taught in almost a century. Loaded with incredible design detail. Reasonably priced. Order a copy!

5 1/2 x 8 1/2 softcover 192 pages

No. 4104 $9.95

Model Engineering

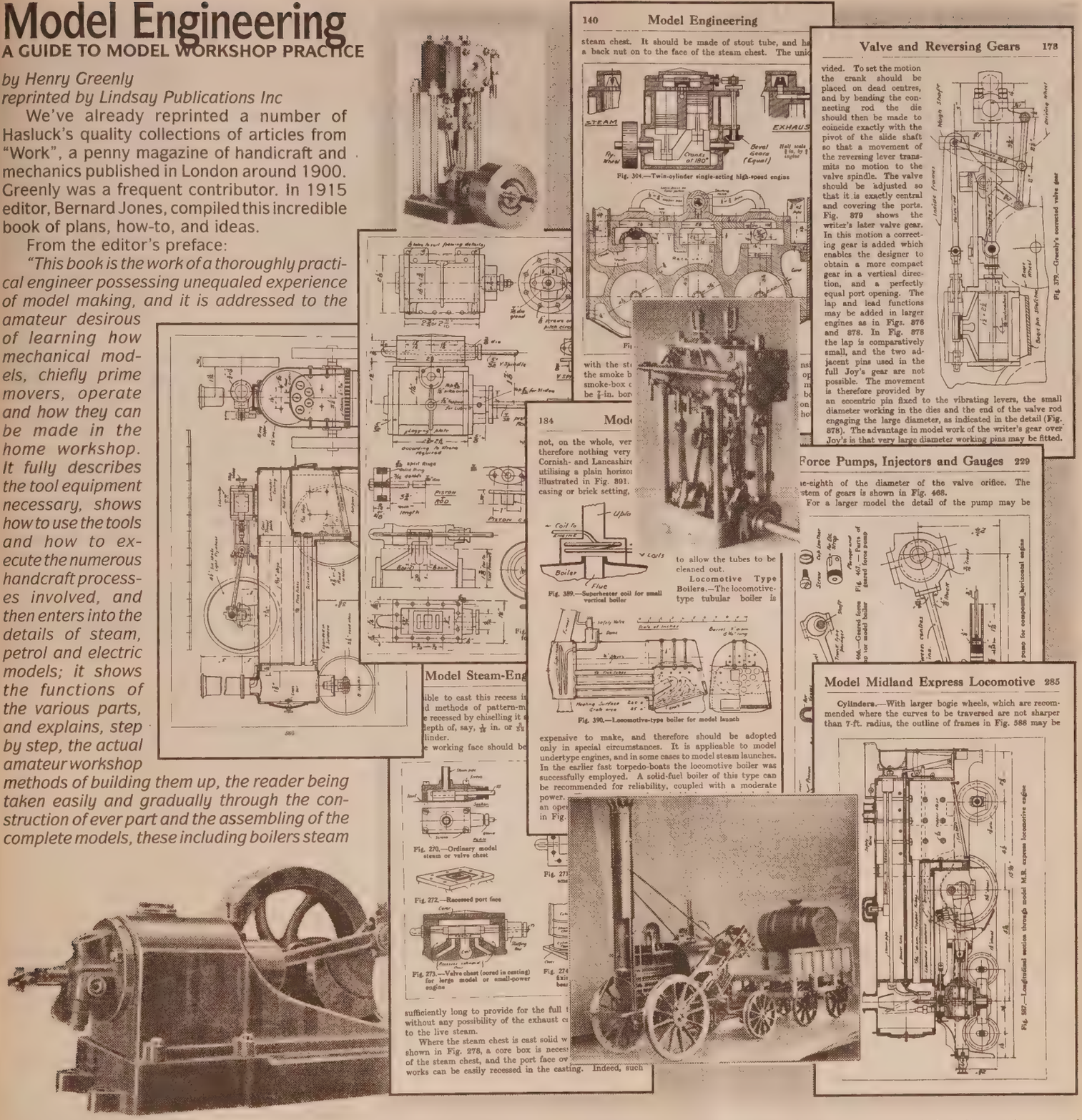
A GUIDE TO MODEL WORKSHOP PRACTICE

by Henry Greenly
reprinted by Lindsay Publications Inc

We've already reprinted a number of Hasluck's quality collections of articles from "Work", a penny magazine of handicraft and mechanics published in London around 1900. Greenly was a frequent contributor. In 1915 editor, Bernard Jones, compiled this incredible book of plans, how-to, and ideas.

From the editor's preface:

"This book is the work of a thoroughly practical engineer possessing unequaled experience of model making, and it is addressed to the amateur desirous of learning how mechanical models, chiefly prime movers, operate and how they can be made in the home workshop. It fully describes the tool equipment necessary, shows how to use the tools and how to execute the numerous handcraft processes involved, and then enters into the details of steam, petrol and electric models; it shows the functions of the various parts, and explains, step by step, the actual amateur workshop methods of building them up, the reader being taken easily and gradually through the construction of ever part and the assembling of the complete models, these including boilers steam engines, internal-combustion engines, steam locomotives, electric locomotives, permanent ways, power hammers, cannon, etc. etc...."


140 Model Engineering
Valve and Reversing Gears 173
Force Pumps, Injectors and Gauges 229
Model Midland Express Locomotive 285

You get 85 photographs and 724 line drawings. So even if you're too lazy to read the informative text, you'll still absorb valuable information.

Chapters include: equipment of a model engineer's workshop; the lathe and its fitments; notes on lathe work; the various processes employed; model steam-engine cylinders; types of model steam engine cylinders; engine cranks, connecting rods, bearings and eccentrics; steam engine valve and reversing gears; model boiler design and construction; model boiler and engine valves and fittings; force pumps, injectors and gauges; firing model boilers; historical and other scale glass-case models; making a model 1-in. by 1-in. vertical steam engine; a high-speed compound condensing engine and coil boiler; a 1/2-in. scale model midland railway express locomotive; working model metropolitan railway electric locomotive; internal combustion engines; model railway engineering, miscellaneous working models, and model G.C.R. Express locomotive.

This incredible book seems to cover just about everything from building a cannon and a crane, to classic locomotives and steam engines. And you get great details on the practical how-to necessary to build these operating models. Wall-to-wall illustrations will show you fire tube and flash steam boilers, the tricks of turning a crankshaft from solid stock, details of a Watt beam engine, model power boats, and on and on.

This is one the best books (and one of the largest) to come along in some time. It's definitely worth having. Put a copy in your library. I would never have reprinted it if I didn't think you would like it. Get one. 5-1/2 x 8-1/2 softcover 407 pages.

No. 23128 $22.95

Building Stirling One

A One Piston Hot Air Engine
by E. T. Warbrooke

From England! An excellent small, but jam-packed book showing both beginning and experienced engine builders how to build a unique displacerless Stirling Engine.

The flywheel is almost 7" in diameter with a 1" diameter x 2" long cylinder and 4-1/2" long heat regenerator. The plans are quite simple and self-explanatory for the experienced builder. But along with each drawing are numerous hints and tips for beginners to ensure success.

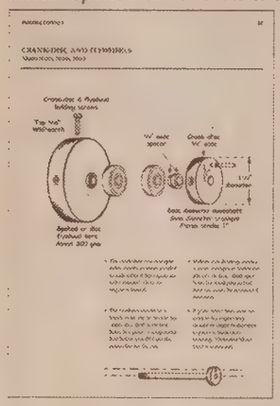
From the introduction page–

"Single Piston Closed Cycle –

Just the one piston works this Hot Air Engine rather than the usual two pistons. Because the power of this engine is low it MUST be made very free moving to run well. The air in the engine is used over and over again. Stirling 1 will run well in either direction.

A Simple Cycle –

Due to the thermal action within the heater the 'WORKING PRESSURE' falls during the compression stroke then rises during the hotter expansion stroke of the piston, so driving the engine. The heat of a small spirit flame is all that is required to run the engine.



Double-Action Pre-Run Test–

Keen experimenters may wish to make this type of engine double-acting by driving both faces of the single piston.

Pre-Run Test–

When the engine is 'FLIPPED OVER' by hand to give it compression it must have a very bouncy feel to it. There should be no binding or tight spots when the crankshaft is rotated.

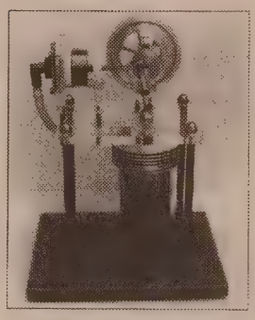
Work Tools–

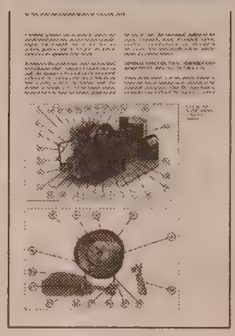
At least a small metal-working lathe and a bench drill along with the usual hand tools are needed to make the parts of the engine plus ideally access to a small gas welding set, or TIG welder to complete the heater."

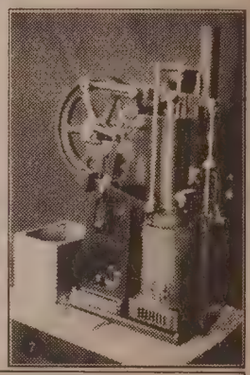
Great engine book from England! Heavily illustrated. Get one! About 9x12 booklet 32 pages
No. 1549 $11.95

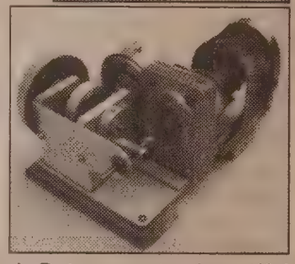
Stirling Engine Manual Vol 2

by James Rizzo









A great book for builder's of heat engines. At this moment Vol 1 is not available, but at least you can get this!

You get detailed text and great illustrations. You get some plans with dimensions, others without. You get photos, side elevation drawings, front elevations, tables of all important dimensions and specifications, and more. I've not seen more practical nuts-and-bolts hands-on how-to on Stirling engines in one place before. From England. But you get a beautiful hardcover book loaded with rare info. It's worth having. 8 x 11-1/2 hardcover more than 140 pages wall-to-wall illustrations and eight pages of color photos
No. 1487 $39.95

CONTENTS

Stirling Cycle Engine • Stirling's 1816 Engine • Lehmann's 1868 Engine • 'Noddy', a Rotary Marble Engine • 'Luck Luke' - a Robinson-style demonstration engine • 'Shaun-Boy' - a glassware concentric demonstration engine • 'Ryan's Own' - a rhombic-drive demonstration engine • Diaphragm powered Stirling Engines and 'Simplico' • 'Chunky' - a partially pressurised diaphragm engine • Low-Tech Pressurised Engines • 'Mark I' - a V-Type Stirling engine • 'Mark II' - a Manually Pressurised Concentric Stirling Engine • 'Mark III' - a Pressurised Stirling Engine with Regenerator & Heat Exchanger • 'Mark IV' - a Self-Pressurising Rhombic Drive Stirling Engine • 'Mark V' - a Rhombic Drive Self-Pressurising 40cc Stirling Engine • APPENDICES: Tamin Enterprises Stirling Engine Projects; Novel Balancing Arrangement for Scotch Yoke Mechanism; Modification to the Ross Drive Linkage; Daniel Lyonnet's rhombic mechanism computer comparisons; suppliers of components and materials • and more

The Tesla Disc Turbine

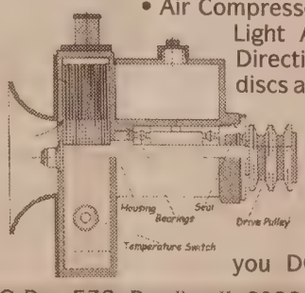
by W. M. J. Cairns

"This book describes the concept of the Disc Turbine as originally patented by Nicola Tesla, and provides concept designs for modern versions of the engine, incorporating the Disc Turbine as a power unit for applications in Automobiles and Light Aircraft, and also give descriptions of the original Turbines and the prototype machines.

It also provides designs for other machines operating on the principle of a disc turbine: an Air Compressor, an Air Motor, and a Vacuum Exhauster. ...

Data is given on the performances attained by the original engines, together with stress and performance information.

Finally, we give a design for a modernised version of the original turbine, to one half scale, complete with working drawings and manufacturing instructions to enable the model or experimental engineer to construct a fully operational engine, using such tools and equipment as are usually available to model makers."



Chapters include: Tesla's original machine • The Disc Turbine Operating Principle • The first experimental Turbine • The 9.75 in. Disc Prototype Turbine • Larger Turbines to 60 in. disc diameter • Future developments • Other Rotary Engines • The Automotive Disc Turbine • Air Compressor, Vacuum Pump, Air Motor, Light Aircraft Engines • The Dual Direction Facility • Stresses in the discs and performance calculations • Building a model Disc Turbine • Drawings for a model Disc Turbine

Since this is a 34 page "booklet", each "chapter" is necessarily short. But what you DO get is loaded with valuable information. Remember this is written by an engineer who is interested in getting results.

The last nine pages are dedicated to the model with six pages of detailed, dimensioned drawings. The machine is built with a 7" swing lathe with milling attachment, circular table, drill press and the usual handtools. And this mother will hit 50,000 rpm with no load!

Unusual information. Well illustrated. I wish it were longer, but it's still worth every penny just as it is. Get a copy! 8-1/2 x 11 booklet 34 pages. From England. Price may change without notice due to changes in currency exchange rates.
No. 1534 $9.95

Building Stirling Engines Without a Lathe

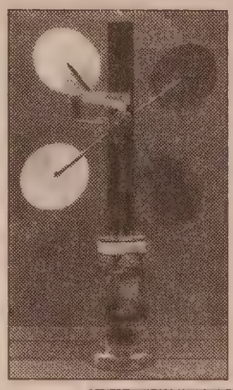
by Kjeld Hoejfeldt

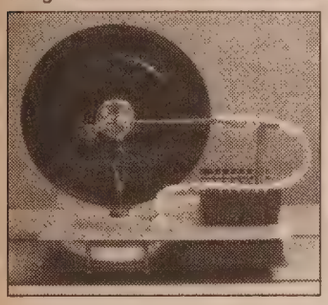
Great book from England! From the backcover:

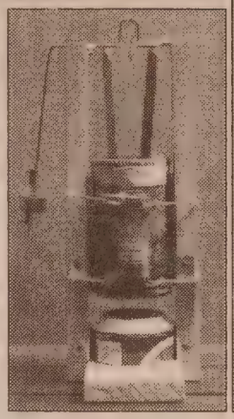
"Danish Accountant Kjeld Hoejfeld became fascinated with the concept of the Stirling, or hot air, engine and decided to learn more about them by building working models.

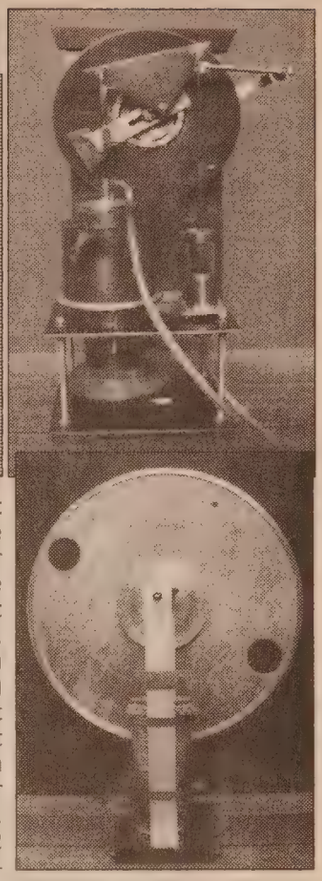
It is usually assumed that doing this is only possible with a good workshop containing, at the least, a lathe – something Kjeld did not have.

Undaunted, Kjeld started investigating means of building the models without any machine tools and, using considerable lateral thinking and ingenuity, built his first working engine; subsequently he followed this with increasingly sophisticated models which cover the major configurations and types of Stirling engine. Only hand tools and soldering equipment were used, and much of the material came from scrap, including many useful parts from old personal computers, videos, record players etc., as can be seen below, as well as used food cans, paperclips and the like.









In this book the author shows you how to build your first engine in detail and follows this up with slightly less detailed descriptions of how to build five other machines. There are no detail drawings, as the dimensions all depend on the material you can find, but the basic concepts and the construction methods are well covered and illustrated..."

It's a small book. Somewhat expensive. But really good. It proves that you can do amazing things with hand tools, a soldering iron, and scrap materials. I don't know about you, I get very tired of hearing people whine they can't do anything because they don't know where to find parts or don't have a $20,000 lathe. And then ask "Don't cha have a kit?" This proves you can do some very amazing things with the simplest of tools. (No, I don't think you'll be able to power your automobile with this. But you'll have fun, and you'll learn something.) Great ideas! Get a copy and start diving through dumpsters for components. 8-1/2 x 11-1/2 booklet 34 pages

No. 1568 $13.95

AMERICAN MACHINIST MEMORIES

Engines 1900-1902

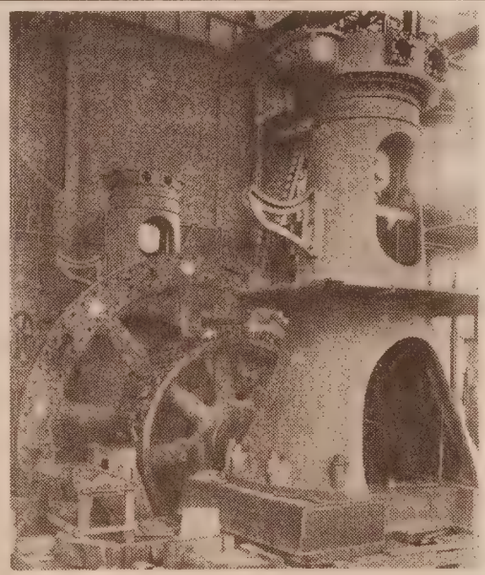
articles from American Machinist Magazine reprinted by Lindsay Publications

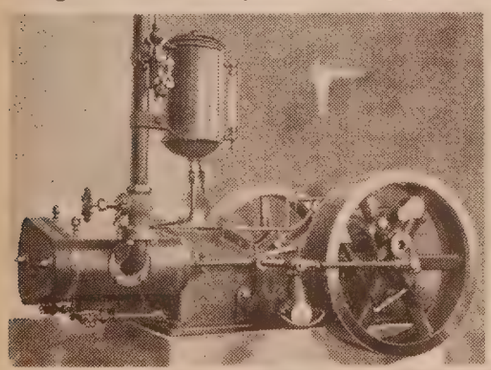
Engines! Gas, oil, steam, even perpetual??!? You get engine articles appearing during the years 1900 through 1902.

You get a little of everything from letters from machinists on how solve problems encountered during turning piston rings, to announcements of new gas engines, to huge engines on display at the exhibition in Dusseldorf.

My favorite has to be the stories covering the construction and installation of the 5,000 and 8,000 hp steam engines in the power houses in New York City needed to convert the "el" over from steam to electricity.

In addition, to articles from American Machinist, you also get a pair of articles from Engineering Magazine with their incredible photographs showing these giant engines being assembled. They are stunning. (One of these photos appeared on our catalog cover a few summers ago.)





Learn how slide valve ports should be checked and how the Sweet valve diagram from 1884 is still useful. Check out the perpetual motion machine that slipped past patent office inspectors. Check out the latest attempt at a "flexible" gas engine, and even how steel wheels were manufactured for the new "hi-tech" gas tractors.

Check out the table of contents below. This a fun, heavily illustrated book worth having. If engines interest you (and if they don't, I'm gonna hafta send Big Bubba out to knock some sense into ya...), you'll like this. Get a copy!

8-1/2 x 11 softcover 96 pages

No. 22814 $11.95

Contents

Two Ways of Machining an Engine Frame • Steam Engine Wreck • An Improved Prony Brake • An Outfit for the Manufacture of Large Segmental Flywheels • Steel Flywheels for the Metropolitan Street Railway Company • An Automatic Cross Compound Steam Engine • Poleforcia • Steam Ports – The Sweet Valve Diagram • The Application of Sweet's Diagram to the Meyer Valve • Manufacturing Connecting Rods for Steam Engines. • Port Openings in Single Valve Automatic Cut-off Engines • A New Attempt at a Flexible Gas Engine • Steel Wheels • The Avery Engine in a Saw Mill. • Leading Features of the De Laval Steam Turbine • The Howard Gasoline Launch Engine • Leading Features of the Westinghouse-Parsons Steam Turbine • Casting the Hubs on Steel Wheels • A Rear-Compression Explosion Engine • Port Opening in Steam Engines • Rig for Truing Crank-shaft and Crank-pin • Large Engines for Manhattan Elevated Railway • A Piston Speed Chart • Stock for Piston Rings • Repairing an Engine Under Difficulties • A Boring Fixture for Small Rod Ends • A Gas Engine Cylinder Pattern • Gates and Gating • The Allis Engines at Glasgow • Hard and Dangerous Boiler Practice Years Ago • Some Shop Engine Indicator Diagrams • The Maywood Gas Engine • Seventieth Anniversary of the Baldwin Locomotive Works • Old Steam Engine Indicators • The Reid Gas Engine • A Successful Rotary Engine • Richard Trevithick – An Unappreciated Inventor • High Speed Engine • Test of an Otto Gasoline Engine • Tandem Compound Steam Cylinders with Pistons and Cylinder Covers Arranged for Easy Removal • Making Gas Engines Go • A Water Dynamometer • Crankshaft Turning • Repairing a Cracked Flywheel. • Railroad Engineering Reminiscences • Laying out a Triplex Crank • Piston Rings for Gas Engines • A Slide Valve Job • High Power Gas Engines at the Dusseldorf Exposition • The Steam Engine For The Electric Traction Power-House • The Steam Engine For The Electric Traction Power-House

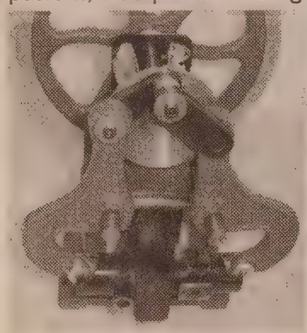
GINGERY'S

Atkinson Differential Engine

by Vince Gingery

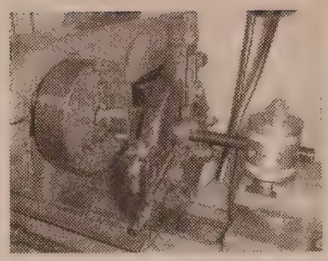
Build an Atkinson differential engine. Learn new skills that can be applied to all engines: patternmaking, molding, casting, boring, lapping, and all the rest.

Contents include: building a wooden mockup, casting, patternmaking, side panel pattern, side panel molding procedure, front & rear panels, oscillating arm patterns, piston rod pattern, preparing the base, assembling the main frame, boring crankshaft bearings and arm pivots, the ignition plate, the water jacket assembly, making a copper lap, milling the cylinder ends, mounting valves on the cylinder, the electrical system, and much more.



This 1886 engine predates the Atkinson Cycle engine. The front panel is about 8" tall. A pair of 1-1/8" diameter x 1-3/8" pistons drive a 8-3/4" flywheel. The arms of this engine move the two pistons toward one another in such a way as to take in fuel, compress and ignite the fuel charge and exhaust the spent mixture so that all four strokes are completed in one revolution of the flywheel. The action looks like a street corner con man running a shell game! Check out the animated photos on our website, and see what we mean. It's exceptionally unusual . . .

Loaded with drawings, photos, specs, and wall-to-wall detailed how-to. More of the usual quality that always comes out of Gingery Publications.



Great book. Unusual info. Get a copy.

8-1/2 x 11 softcover 112 pages

No. 1509 $15.95

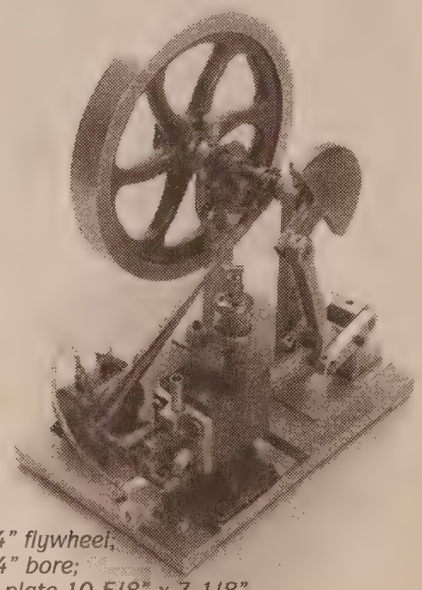
FROM THE BACKCOVER...

You get step-by-step instructions from Vince and Dave Gingery showing how the Atkinson "Differential" engine is built from original patent drawings. A lathe, a milling machine or milling attachment, and other commons tools are required. Castings are suggested for the main frame, oscillating arms and flywheel, but none of these parts are so complex that they could not be made from stock material. Other parts such as piston rings are readily available from the suppliers listed. But if you want to make your own piston rings, we'll show you how to do that, too.

BUILDING THE

Atkinson "Cycle" Engine

ALL FOUR CYCLES IN ONE REVOLUTION OF THE CRANK!



8 3/4" flywheel; 1-1/4" bore; base plate 10-5/8" x 7-1/8"

by Vince Gingery

To avoid patent infringement in 1887, Atkinson was forced to create a completely new approach to internal combustion.

Vince writes:

"We have found that wherever we show this engine, people are amazed... They ask... Where are the timing gears? What about a separate cam shaft? How does it run? How can it complete four cycles in a single revolution of the crankshaft? Are you sure it's not a two cycle engine?

We smile and explain that the secret lies in the unusual design of the crank linkage which, believe it or not, allows the exhaust, intake, compression and power strokes to be completed in one revolution of the crankshaft. The cams are located on the crankshaft eliminating the need for timing gears and cam shaft."

Here you get step-by-step instructions showing how to build an Atkinson "Cycle" engine designed and perfected by Jim Lewis. Castings are suggested for the base, flywheel, cylinder head and crank linkage, but none of these parts are so complex that they could not be made from stock material. Other parts are readily available, and suppliers names and addresses are provided to make it even easier. A lathe, milling machine or milling attachment and other tools one would expect to need in a project of this type are required.

You get the typical Gingery detailed drawings and text for making the patterns, machining the castings, and assembling the engine. I saw the prototype run. Interesting engine, to say the least. Build one!

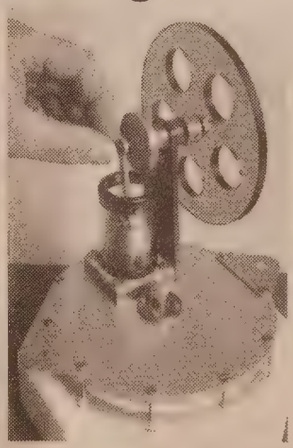
8 1/2 x 11 softcover 94 pages

No. 1400 $15.95

Miniature Ringbom Engines

by JR Senft

Stirling engines usually have a displacer piston connected through a linkage system to the crankshaft. Not the Ringbom. The displacer piston floats without any linkage, being moved by the pressure differentials developed inside the engine.



Here, Jim "Dr Stirling" Senft delivers the data you need to build one of several different Ringbom engines.

Chapters include: Ringbom Stirling Engines, Tapper, L-27, Thumper,and New Engine ideas. You get a small book loaded with photos and dimensioned drawings.

Build one of these nifty machines and tell you're demented in-laws that it runs on special fuel pumped from a Ringbom well out in the backyard. (They will probably believe you.) But they'll be amazed when you strike a match and the engine comes to life.

Get a copy. Quality material. 5-1/2 x 8 softcover 114 pages

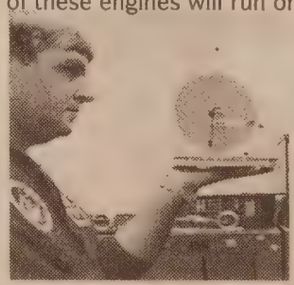
No. 1535 $17.95

LOW TEMPERATURE

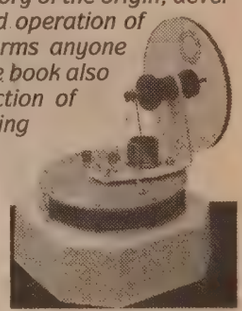
Differential Stirling Engines

by James R Senft

These are engines designed to run on low-grade heat. In fact some of these engines will run on the heat given off by your hand.



The author writes, *"Much of my recent university research has been in this area, and this book tells the story of the origin, development, theory, and operation of these engines in terms anyone can understand. The book also covers the construction of these engines including complete plans and instructions for building a model engine which will run truly effortlessly when held in your warm hand."*



Another must have book for the engine nut. Build an engine. Your neighbors and relatives will think you're a genius. Get a copy! 5 1/2 x 8 softcover 88 pages

No. 1408 $13.95

The Non-Rotative Beam Engine

by Maurice Kelley

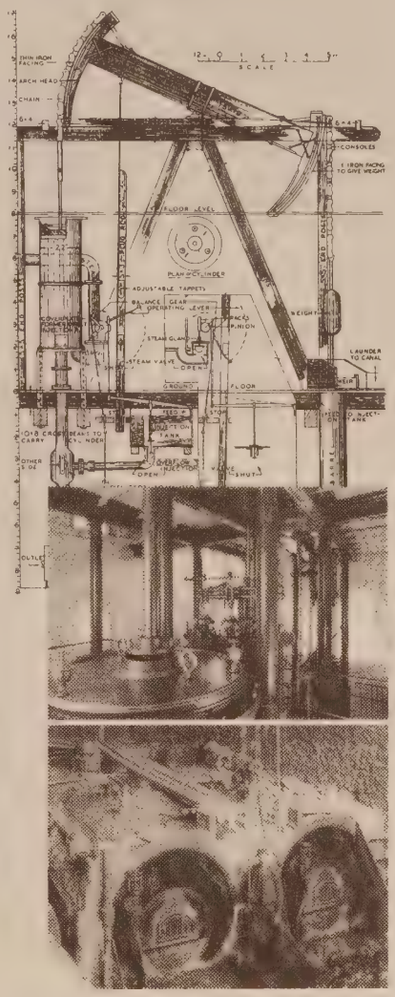
The first steam engines developed by Newcomen had no crankshaft or flywheel. The piston connected vertically to a rocking beam at the far of which was a rod that dropped deep into Cornish mines to actuate a water pump. These non-rotative or Cornish beam engines were later improved upon by Watt, Bull, and Woolf, and some ran for as long as a 150 years!

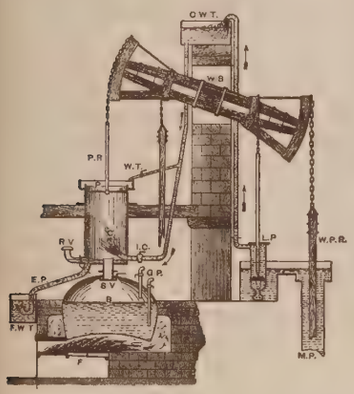
Here, from England, is a fascinating book loaded with illustrations tracing the history and technical details of the engine that began the industrial revolution. You get details on the operation of these engines, the boilers that powered them, and a guide to surviving examples.

Perhaps you can take this information and build an impressive table-top model. It's so different from a steam locomotive that it's hard to believe that they're both steam engines!

Again, wall-to-wall illustrations and fascinating detail. Get a copy! approx 8-1/2 x 11 softcover 64 pages 70 illustrations

No. 1544 $14.95

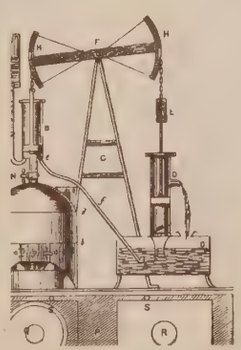




Steam Engine Projects

FROM THE YOUNG MECHANIC 1871

reprinted by Lindsay Publications



The 1896 edition of the Young Mechanic contained mostly dull information in its 340 pages. At the back of the book, however, were interesting chapters on how to build simple but functioning steam engines and their boilers. Only those chapters have been reprinted here.

Chapters include: How to Make a Steam Engine, Watt's Engine, and How to Make an Engine. You'll learn about the basics of steam power, packing glands, Newcomen's engine, details of Watt's steam engine, and throughout details on building both the engine and boiler.

Certainly, this is not a sophisticated engine, but IT IS an engine that almost anyone should be able to build and operate. Even if you don't build the engine described, you will find useful ideas that you can apply to your own design.

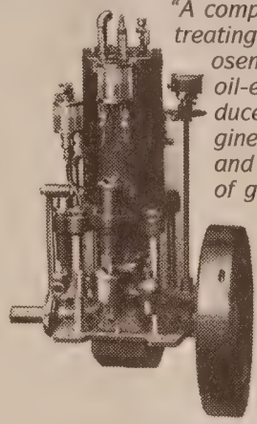
It's great old information at a very reasonable price. Order a copy. 5 1/2 x 8 1/2 softcover 64 pages leatherette cover

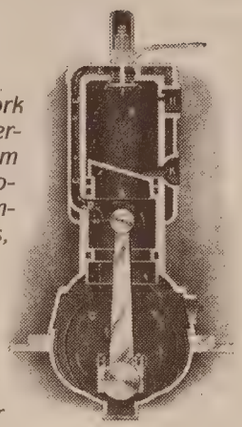
No. 20234 $4.95

Gas, Gasoline and Oil-Engines

by Gardner D Hiscox

reprinted by Lindsay Publications





"A complete and practical work treating on gas, gasoline, kerosene, and crude petroleum oil-engines including producer-gas plants for gas-engine owners, gas engineers, and intending purchasers of gas-engines, fully describing and illustrating the theory, design, construction and management of the explosive motor for stationary, marine and vehicle motor power."

This is a classic loaded with photo's, drawings, and engravings of engines, and all the components that go into their construction from ignition systems to valve mechanisms, from clutches to lubrication pumps. You even get off-the-wall info on propellers for marine engines and use of steam engine indicators on IC engines.

Fig. 368.—The Thor motor-bicycle, made by the Aurora Automatic Machinery Company, Aurora, Ill.

You also get a great illustrated chapter on converting coal into producer gas. These are big stationary plants to turn coal into gases that can be burned by an engine. This is great info for the guy who wants to perfect a small bumper mounted unit for his car so that he can burn wood instead of gasoline. These units may also be adaptable to the production of coke. Don't know. You figure it out.

The last chapter is a great research tool. You get the dates, numbers and inventor names of several thousand engine patents granted between 1875 and 1910. You get NO details however. This can be useful if you're researching the output of a particular inventor, say, Diesel for instance. But beyond that, many of the patents are of little interest.

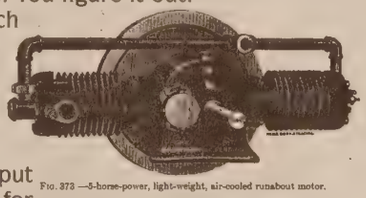


Fig. 373.—5-horse-power, light-weight, air-cooled runabout motor.

Great book. A must have for the engine nut. Classic text. Loaded with rare information of all types. Get a copy. 18th edition 1910 - 5 1/2 x 8 1/2 softcover 476 pages

No. 22032 $19.95

A Very Small Piece of the Contents Page...

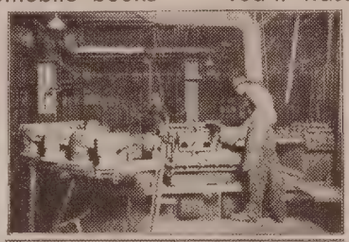
CHAPTER VIII The Materials of Power in Explosive Engines.—Illuminating Gas, Natural Gas, Producer-Gas, Gasoline, Kerosene, Acetylene, and Alcohol.—Composition and Fuel Valves.—Tables .. **CHAPTER IX** Carbureters and Vaporizers.—Vapor-Gas for Explosive Motors.—Atomizing Carbureters and Vaporizers.—Methods of Starting Motors. . **CHAPTER X** Cylinder Capacity of Gas and Gasoline Engines.—Tables of Sizes and Powers. Cylinder Diameter, Stroke, and Motor Parts.—Table of Motor Dimensions . **CHAPTER XI** Governors and Valve-Gear. Fly-Ball, Inertia, and Pendulum Types. Direct Valve-Gear.—Cams **CHAPTER XX** Gas and Gasoline Motors.—The Amateur's Motor.—Gemmer, Westinghouse, Lambert, Union, Blakeslee, Hatrig, Root & Vandervoort, Hubbard, Fairbanks, Morse and .Company, Motors. Crude-Oil Generators . **CHAPTER XXI** Marine Motors. Marine Engines and Their Work. Table, Size of Engines and Boats.—Bridgeport, Yacht Gas-Engine and Launch Company Motors.- Racing Launch. Godshalk and Company Motors. — J.J. Parker Company and Standard Construction Company Motors. —Trawl Boats.- Mianus, Hall Brothers', Lozier, Cushman, and Smalley Motors.- Speed Boats.- Cooling the Cylinders.—Offset Cylinder. Ignition and Lighting Outfit. Make-and-Break Ignition.—Working Boats.—Wiring Make-and-Break Engines.— and more!

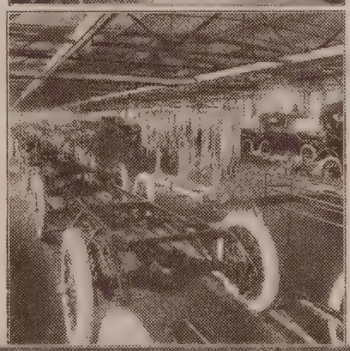
AMERICAN MACHINIST MEMORIES

Automobiles 1913-15

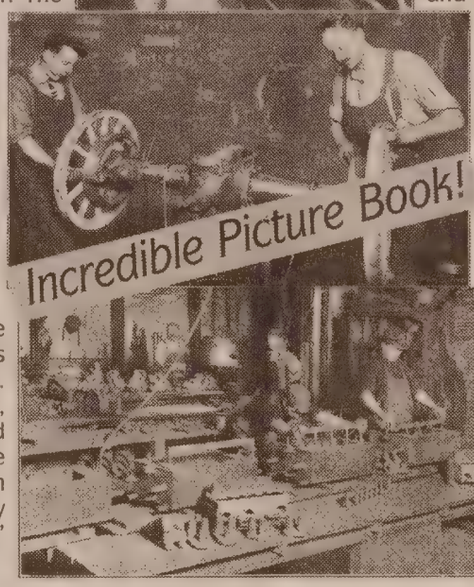
reprinted by Lindsay Publications Inc

There are countless automobile books on the market, but I've never seen anything quite like this. I think it's because most auto books are fluff published for air-heads. This is for the few people who truly appreciate the complexity that goes into building a reliable automobile. And when you factor in the necessity of producing massive numbers of carefully machined parts, the complexity increases immensely.





Here you explore the production methods used to build the real innards of the automobile: valves, pistons, engines blocks, transmissions, oil pans, steering gear, radiators, and so on. What good is the finest automobile body if these parts don't function well? The "don't gotta work, just gotta look good" dipstick philosophy doesn't cut it here!



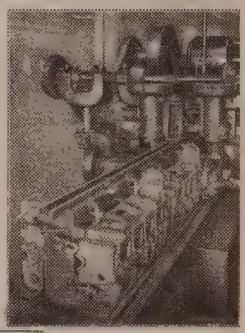
Explore the shops of Crane, Winton, Hupp, Studebaker, Cadillac, White, Pierce-Arrow, Ford and others. Watch has workmen lift a Model "T" block into an upside down drill press and with one pull of the handle drill all the holes for main bearing caps. Watch as bar stock is cut, bent into horseshoes and magnetized to become the "T" magneto. Watch as 95 tubes are quickly assembled into a "T" Radiator.

You'll watch workman in Birmingham England ram up molds and pour aluminum into them to create crankcases for Daimler engines. You'll explore the machine that takes a roll of flat stock and creates radiator tubes with both circular and oval cross-sections, and does if fast! See how wire wheels were made.

You'll see the countless workbenches where gangs of men assembled "T" engines before the assembly line was installed. You'll watch as the main bearings in a Pierce-Arrow block were line-reamed rather than hand-scraped as before. You'll see workmen putting wooden wheels on the rear axle of a White touring car, and dual wheels on the huge chain drive White truck. You'll also see the clever way White cut enormous rear wheel sprockets.

If you've ever had an old Model "A" or "T" or a classic car you know that they were much simpler than today's autos. Yet I've many times wondered how so many of these vehicles could have been produced back before World War I.

The machinery used was only one step more complicated than the lathes and milling machines that you and I use. In fact you'll see many engine lathes equipped with fixtures and jigs to bore wrist-pin holes, universal joints and son on. It's fun to imagine what it must have been like to be part of the expanding auto industry, because so many of the



mass production procedures are methods you and I could have come up with. You'll see none of the complicated machines that today take in a casting and

turn out a running engine. It was far simpler then.

Great book for old time auto buffs and restorers. Great ideas for jigs, fixtures and solutions to difficult problems. Fun reading for people who work metal. And yes, maybe you can start turning out old-time autos on that assembly line you'll build in your garage!

Fun reading. One big picture book. Fascinating documentation on an important industry at a pivotal moment in its history. Get a copy. I'm convinced you'll like it.

8-1/2 x 11 softcover 160 pages
No. 22954 $14.95

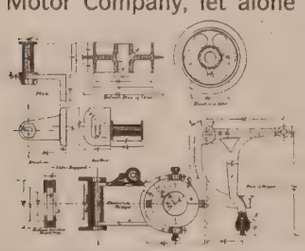
THE CONSTRUCTION OF A

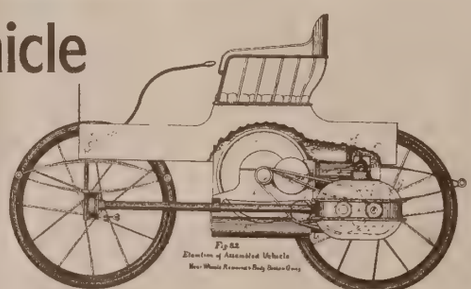
Gasolene Motor Vehicle

by C. C. Bramwell
reprinted by Lindsay Publications

Build yourself a car! Naw, it won't set any land speed record. And it's not one of those dipstick 14 ton SUV's that need more fuel than a 747. This is a horseless carriage. A 1901 model!

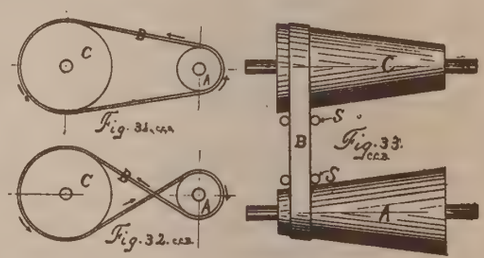
Now think about that. When this compilation of articles taken from pages of the Motor Vehicle Review magazine was first published, Henry Ford hadn't yet started the first Ford Motor Company, let alone the second. The auto that you'll be shown how to build is more like the model the Duryea's started producing in Peoria in 1896. Very early. Very unusual.





You get nineteen chapters, starting with chapters on carburetion and ignition and progressing through to the construction of the one-lung four-cycle engine, the running gear, and the chassis. I don't see much on the body construction. The engine is a 4 1/8" bore by 5" stroke, which by my calculation is about 67 cubic inches. That oughta get you down the street just slightly faster than a lame mountain goat using a walker.

Fascinating book because it gives you insight into the technology of the era. This is the book



that might have gotten you into the automobile business a century ago. And it could get you into the auto business today, showing you how to produce a full size model for exhibition or experimentation, or how to provide castings and/or kits for other builders. Or it could get you in a lot of trouble, and that's always fun!

Neat book. Loaded with dimensioned drawings. I wish I had the time to use it to build a quarter size model. But I know you have the time, so get started.

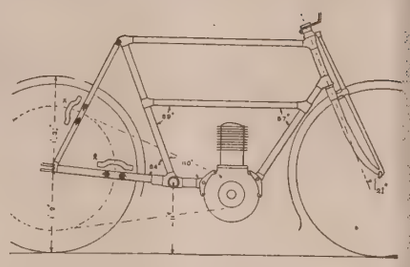
Get a copy of this today. 5-1/2 x 8-1/2 softcover 149 pages
No. 22725 $11.95

Motor Bicycle Building

edited by Paul N Hasluck
reprinted by Lindsay Publications

Here you get a reprint of a very scarce book from 1906. Back then if you wanted a motorcycle, you had to build one. From scratch!

Here you get the details on building a 3-1/2 hp engine (3-1/2" bore x 2-1/2" stroke) around which you build a bicycle frame. It's not speculation. This is a motor bicycle that was actually built and probably terrified the local gentry.



Most of the book deals with the castings that form the joints in the frame, and the fabrication of the engine itself. And that means lots of detail in fabricating the piston, connecting rod, muffler, points, cams, valves, spray carburettor, ignition coil, and all the rest. If you were sharp enough to build the engine, then you were expected to know how to adapt wheels, handle bars, brakes and the usual other components from a standard safety bicycle of the era.

No doubt, this was a multi-part construction article that appeared in "Work" magazine (British) at the turn of the 20th century. All of the detailed text and drawings have been brought together in one book that we offer at a price that is a small fraction of the cost of an original copy should you be able to find one.

Neat little book. Worth having even if you never build a motor bicycle. Perhaps the plans might provide the ideas needed to adapt a small existing engine to an old bicycle frame. You could make it look old. Exhibit it in the next Mad Machinist's Day Parade. And get run out of town on a rail!

I can understand why copies are scarce. Who would want to part with their original? But now you can have a quality reprint. Order one. 5-1/2 x 8-1/2 softcover 160 pages

No. 23136 $10.95

Horseless Vehicles

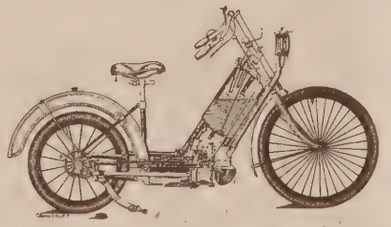
AUTOMOBILES AND MOTOR CYCLES

by Gardner D Hiscox

"...operated by steam, hydro-carbon, electric and pneumatic motors. A practical treatise for automobilists, manufacturers, capitalists, investors and everyone interested in the development, use and care of the automobile including a special chapter on how to build an electric cab, with detail drawings." Heavy stuff! for 1900!

This is a gem. An absolute gem, and you'll be hard pressed to find a used copy on the used book market. Here, you can have a quality reprint at a fraction of the price I paid for the original (with a detached cover).

This big, heavily illustrated volume covers a wide range of early auto history and technology. Chapters include: introduction, history, steam automobile appliances, specialties in automobile construction, steam propelled vehicles and automobile carriages, horseless vehicles with explosive motors, electric ignition devices, atomizing carburetors,



operating devices and speed gears, motive power and running gear, automobile bicycles and tricycle, gasoline motor carriages and vehicles, electric motive power for vehicles, how to build an electric cab, general management of motor vehicles of all kinds, compressed air power for vehicles, miscellaneous, and lists of patents and manufacturers.

You get drawings and photos of early steam carriages, burners, boilers, engines, marine engines, carriages, delivery trucks, Phaetons, Broughams, some of the machine tools to build autos, and much more.

The four page list of manufacturers is interesting in itself. Duryea, of course, was producing autos in Peoria, but so was the Peoria Rubber Mfg Co. Haynes-Apperson (remember the JackRabbit?) was operating in Kokomo. Marsh Motor Carriage was building in Brockton, MA. And hundreds more.

Build a half scale of a Steam Dos-A-Dos. The electric cab drawings occupy only one page, and the instructions are obviously not very detailed. But it's a strange looking vehicle that would get you a lot of attention when you run it down the street. Every dog in town would want to lift his leg on the wheels! (a lot of weird machinists would want to lift their legs as well...)

Get a copy of this! It's good. No doubt about it. About 488 pages with advertising. 5 1/2 x 8 1/2 softcover

No. 22342 $24.95

Locomotive Breakdowns

EMERGENCIES AND THEIR REMEDIES

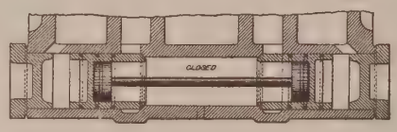
by George Fowler
reprinted by Lindsay Publications

"Being an up-to-date catechism treating on accidents and breakdowns on the road and how to repair them. Every kind of an accident which is likely to occur to a locomotive engine while in service is fully discussed and its remedy given. Compound locomotives are included so that railroad men may post themselves in regard to emergency work in connection with this class of engine."

Keep Your Train Running!

The next time you pull your Mogul out of the round house and head on down the mainline into town to get groceries, you can take this little book with you to help you fix the bar guides on the crossheads when they start to overheat. Or where to drive a timber under a spring stirrup to relieve a broken box brass. Or how to tell if you have broken valves in your Westinghouse steam air-compressor (kayn't go no place until you release the brakes...)!

It's about understanding what old-time railroaders had to know to get where they were going. This is the kind of wisdom Wil Osborne (Echoes from the Oil Country) had to dispense on a regular basis.



You get details on diagnosing and often fixing temporarily problems with broken or leaky pistons, leaky throttle valves, loose tires, blow-by and motion defects in the engine valves, and more. Specific problems target the Vauclain locomotive, the Richmond, the Schenectady, and Baldwin four-cylinders.

You get illustrations of the Nathan cylinder lubricator, ways of the chaining four-wheeled truck frames with a broken front axle, how to board up the front of the smoke box should the casting be broken, the design of the Cooke wrecking frog, welding cracked frames, strengthening a cracked bridge, simple tools that can be fabricated, and more.

This certainly is unusual information. And valuable reading for steam fans, rail historians, and engine builders, I suspect. You're sure to learn something about the practical operation of a locomotives – and you'll probably be glad you never had to earn a living THAT way.

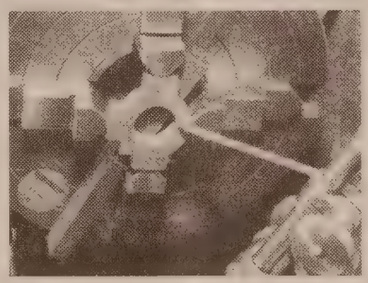
Unusual book. Fascinating reading. 1903. Get one. 5-1/2 x 8-1/2 softcover 244 pages 96 illustrations

No. 23012 $14.95

MODEL & MINIATURE

Locomotive Construction

by Stan Bray



"You get... detail instructions, and a whole host of useful hints, tips and ideas on building model and miniature locomotives, be they steam, electric or i.c. powered, all based on more than fifty years experience of building locomotives.

Whether you are a beginner taking your first steps into locomotive building, or a more experienced builder in any gauge from Gauge 1 to 7-1/4", you will find this book an indispensable aid to making those awkward, bits, taking short cuts and constructing a model of which you can be proud...."

As I understand it, this is the first really high-quality, substantial how-to locomotive book to be published since 1974. And although it is British, the publisher tells me it was written with the intention of being international. In other words, the British author realizes that a substantial number of Americans will be reading this.

Chapters include scales and gauges, frames, springs, wheels, axles and cranks, carrying wheels, cylinders, valve gears, slide bars and crossheads, the front end, boilers, regulators, safety valves, firedoors and grates, drain cocks, brakes, how to get water into the boiler, lubrication, cab fittings, platework, tenders, non-steam locomotives, finishing, running, and more.

And it is, of course, well illustrated – even several pages of full color photographs. This is an expensive book, but it delivers. High quality. I knew at once that it had to be in this catalog.

Building a miniature steam locomotive has to be a test of the machinist's art. But it's not impossible for you and me, with our limited skills, to get started. Here's how. A book worth having. Order a copy. British. Price and availability may vary. 8-1/2 x 11-1/2 hardcover 204 pages

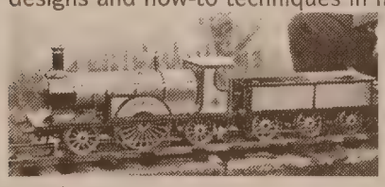
No. 1559 $52.95

"LBSC" - His Life and Locomotives

by Brian Hollingsworth
reprinted by Camden Miniature Steam (UK)

Some of us work metal, and then there are those we call craftsmen – people who perform magic with metal. Building a model live steam locomotive is magical, the result of skill, dedication, and determination. Most of us would be proud to build a locomotive. "LBSC" whose real name was Curly Lawrence, built fifty-five locomotives. You heard right. Fifty five!

Not only that, Lawrence published his designs and how-to techniques in more than 3000 articles over 35 years in the British magazine, the Model Engineer. Each article was signed "LBSC." This is the story of the man's life and his locomotives.



Chapters include the boy from a poor home, railwayman, engineering and other work, battle of the boilers, shops and shed, a visit to America, inspector meticulous and friends, the polar route and other lines, wartime and after, the last decade of the Live Steam Notes, declining years, a summing up, and an incredible alphabetical list of locomotives he built and described in his weekly column.

This is not a how-to book. This is a book for those few with enough sophistication to truly appreciate the sculpture that Lawrence created. This book is not unlike a retrospect of Picasso, Francis Bacon or Matisse, only here, we're not discussing oil paintings, but instead are appreciating meticulous modeling and quality engineering. We're talking about working steam engines with boilers not much more than a foot long capable of pulling two grown men (about 350 pounds) along 2-1/2" gauge rail!

You get a heavily illustrated volume with drawings of the various locomotives Curly designed, modeled and built, and countless photographs showing the models both on display and under steam. And the detailed text discusses turns and events in Curly's life as well as the feuds that evolved with other modelers and the bad blood that eventually developed between author and publisher that lead to his resignation.

This is fascinating reading for those of us who appreciate Curly's talent and wizardry. Good book. Consider it carefully. 9x11 hardcover 108 pages from England

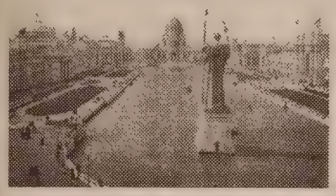
No. 1556 $40.95

Two Great Railroad Exhibits at Chicago

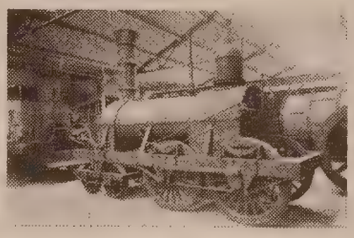
by John C Trautwine,
Cassier's Magazine 1893
reprinted by Lindsay Publications

The World's Columbian Exhibition opened a year late in Chicago, commemorating the 400th anniversary of Columbus's journey to the Americas. And it was a spectacular world's fair. One of the greatest ever staged. Mind-bogglingly huge!

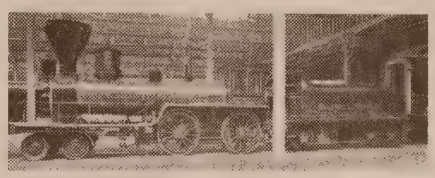
Here Trautwine, a civil engineer, reports to the readers of Cassier's magazine on the incredible railroad exhibits at the fair, specifically those of the Pennsylvania Railroad, and that of the Baltimore & Ohio Railroad. Covered are history and state of the railroad art.

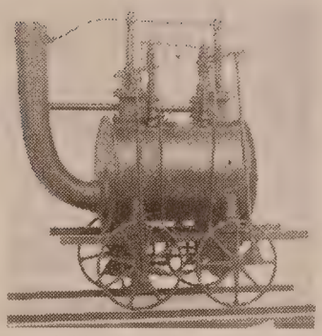


Youget Trautwine's original text, drawings, and every photograph - including amazing engines – from the John Bull, the 999, and Daniel Nason, to incredible full-size models of the James II, the Campbell, the Sandusky, the Mazeppa, and others built and used before 1850.



Then, from other contemporary publications, we added numerous other photographs and maps in an attempt to show you what the author saw in Chicago. You'll see small "glass case" models, full size engines from Britain and France, outdoor exhibits and more.





This is fun reading. Well-illustrated. True, the author covers so much material so quickly there is not enough detail. But there was so much to see. Almost too much for any one person. And this small, inexpensive booklet is about as close as we can easily come to imaging that we are visiting the fair with millions of other people.

Interesting little booklet. I wish I could have been there. Get a copy! 8-1/2 x 5-1/2 booklet 48 pages
No. 23110 $7.95

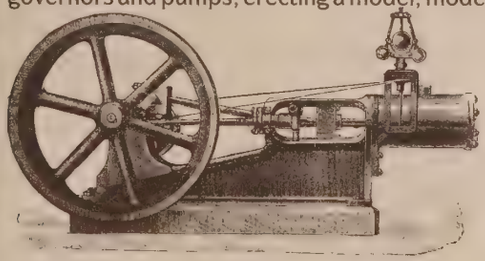
The Model Engineer's Handybook

by Paul N Hasluck
reprinted by Lindsay Publications

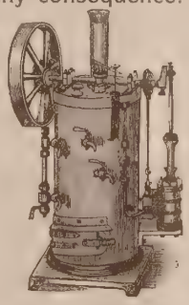
Another gem from Hasluck's "Work" series! 1918.

"A practical manual on model steam engines embracing information on the tools, materials and processes employed in their construction."

Chapters include principles of the steam engine, model steam engine, self-acting toy engine, horizontal engines, oscillating engines, launch engine, tank engine, tank engine details, governors and pumps, erecting a model, model boilers, and miscellaneous items.

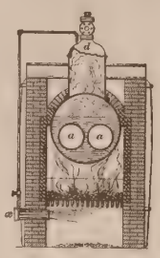


This isn't a collection of plans as such. No dimensioned drawings of any consequence. This is about the details a model maker must know if he is to build a small steam engine. You get how-to and construction details, but this is more about about stimulating you to generate ideas. Lots of engravings and drawings of components.



A great little book for engine builders. Loaded with practical ideas waiting to be adapted to modern materials and methods. I have a copy here with your name on it. Just say when.
5-1/2 x 8-1/2 softcover 160 pages
No. 22555 $9.95

ICS Boilers–
TYPES & DESIGN



by International Correspondence Schools
reprinted by Lindsay Publications

From 1907 you get three of the best sections on boilers from the same books that yielded "STEAM ENGINE DESIGN" described elsewhere in this catalog.

In the first section you'll be introduced to stationary boilers of the horizontal shell, flue and tubular types. Plus horizontal return-tubular boilers, and boilers with names like Cornish, Galloway, and Clyde. You'll see the locomotive or firebox boiler, vertical tubular boilers, the Babcox-Wilcox, the Heine, the Stirling, the Hazelton, the Morrin Climax boiler and more.

Investigate boiler design: proportions, power, and construction. Then be exposed to formulas that when used with a pocket calculator will give you hard answers to "what-if" questions. Learn how big you'll have to make the grate to get a certain number of horsepower, about iron and rivets, and about testing. See both bolt and bracket boilers stays, as well as stays for both locomotive and marine boilers.

The formulas will give you ball park figures for strength of plates, the number of rivets you'll need, allowable pressures on direct stays, width and thickness of reinforcing rings, number of tubes in a horizontal tube-return boiler and much more.

This is NOT about building a particular boiler of a particular size. This is a textbook designed to introduce the 1907 apprentice to the state-of-the-art. If you decide to build a boiler, you'll want to consult modern expensive engineering texts for pressure vessel standards. It is essential that you see what modern safety recommendations are now being made.

This is a must-have. Good book. 5 1/2 x 8 1/2 softcover 134 pages
No. 22113 $9.95

The Modern Steam Car
AND ITS BACKGROUND

by Thomas S Derr
reprinted by Lindsay Publications

I knew this was a fascinating book when I saw it years ago for the first time. Recently a customer provided an original copy so that it could be reprinted.

Originally published in 1932 by Floyd Clymer and revised in 1934, this enjoyable and nicely illustrated book covers the magic of steam, history of steam power, history of steam cars, modern steam cars, and the operation and care of steam cars.

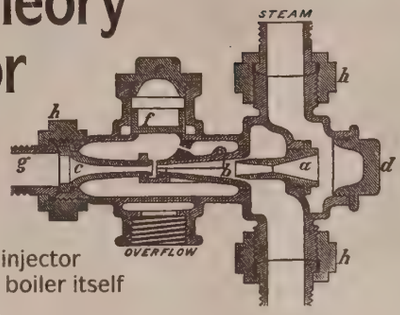
The first Stanley racing car . . . driven by F. E. Stanley. This car established a track record for 1 mile at Readville Track, May 30, 1903 . . . Time 1 minute 2 4/5 seconds. It was 30 h.p.

You get information and photos on machines from Cugnot's auto of 1770 to the Stanley Brothers and others. The last chapter covers in detail the vehicle produced by American Steam Automobile Co. The last fifty pages were added to the book by Clymer himself and present essentially a picture gallery of steam auto advertisments including the highly detailed literature on the incredible 1925 Doble steam car. You'll see a steam motorcycle, a converted Packard, and more. Great stuff.

Be warned that this was published during the Great Depression. And much of this original is actually a reprint of advertising. So your copy will be a reprint of a reprint. The photos are not as good as I would like them, but it's all we have to work with. I think you'll find them acceptable.

Fascinating reading for steam buffs, auto buffs, and machinery nuts in general. Get a copy! 5 1/2 x 8 1/2 paperback 148 pages
No. 22172 $11.95

Practice & Theory of the Injector



by Strickland Kneass
reprinted by
Lindsay Publications

Injectors are magical. To push water into a boiler pressurized to 100 psi, you must use more than 100 psi pressure. Yet an injector can use 100 psi steam from the boiler itself to inject more water. It's magic.

There are a number of old books on injectors and they're quite good. But this is better. Here you not only learn how injectors work, but you get lots of engineering details and formulas you can punch into a pocket calculator so that you can design your own.

Chapters include early history (about how in Henri Giffard invented injectors in the 1850's), development of the principle, definition of terms, the delivery tube, the combining tube, the steam nozzle, the action of the injector, application - both foreign and American practice, and determination of size.

Learn about single and double jets, automatic or re-starting, open overflow and more. And you'll get details on the Sellers' Injector of 1876, the Monitor injector, the Nathan WF injector, the Schutte, Belfield, Sellers' of 1887, Metropolitan and others.

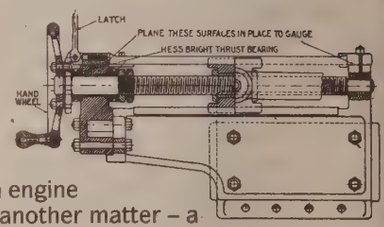
Again, this is a cut above. This is NOT a dumb book: drill a hole here, put a bolt there. This is a smart book that allows you to say "what if I did this? or can I do that?" Kneass, a well known engineer of his time, will teach you the secrets of a device essential to steam power.

Excellent book from 1894. Unusual quality. Lots of cross section drawings and simple formulas. If you're into steam power, consider this very carefully. 5-1/2 x 8-1/2 softcover 132 pages

No. 23063 $10.95

Locomotive Valves & Valve Gears

with a Special Treatise on Valve Setting
by Yoder & Wharen



"An explanation of the construction and action of the plain slide valve, the piston valve and the gears which operate them, as applied to locomotives."

Getting a steam engine to run isn't all that hard. Getting a steam engine to purr along at high efficiency is another matter – a matter solved only by intelligent use of sophisticated valve gear. Here you get the details of valve gear used on railroad locomotives in 1917.

Chapters include locomotive valves and valve gears, the Stephenson valve gear, the Walschaert valve gear, effects of altering the valve and its events, locomotive valve setting, an appendix and so on. The fourth chapter discusses the Baker, Southern, Joy, Young, and Allen valve gear, and the Gooch stationary link.

Most valve gear books I've seen are loaded with geometric drawings teaching the design of the gear. Geometry is important, but this is somewhat different in that it is loaded with great views of locomotives, cross sections of valves and pistons, and detailed drawings of the gear. In other words, this isn't so much theory of design, as it is a handbook for locomotive shop men in keeping their engines running efficiently.

Excellent book. Great illustrations. Must have for railroad buffs, but useful for all steam enthusiasts. A reprint of an American book produced in England for British steam buffs. Get a copy! 5 1/2 x 8 1/2 hardcover 272 pages

No. 1344 $25.95

Steam Airplane & Small Power Boilers

from Model Engineer 1913

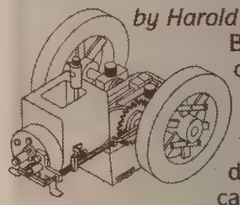
Build a steam power plant for you model airplane! That author claims the engine is the most difficult part to fabricate but is not beyond the abilities of the average modelmaker. The cylinder is of German silver tube, with a steel crankcase that has been carefully brazed. He'll tell you how to fabricate the cylinder, rings, rotary valve and all the rest. When complete, the engine weighs less than 5 ounces. The flash steam boiler is fabricated from 8 feet of 3/16th steel tube. You get drawings and details. The author claims flights of over a quarter of a mile!

The back half of this booklet is a general lengthy article on the design of small boilers, feedwater pumps, materials to be used, details on safety valves, alcohol burners, much more.

Nitty-gritty power plant how-to written by people who did it. Nothing on building the airplane. Great reading. Get a copy today! 8 1/2 x 11 booklet 39 pages

No. 876 $6.95

Hit & Miss Engine Plans



by Harold Depenbusch

Build a water cooled one-lunger with a 1 1/8" bore and 1 1/2" stroke. No castings needed. Well illustrated and detailed info on fabricating the cylinder, base, flywheels, crankshaft and all other components. Published by the author. 8 1/2 x 11 booklet 40 pages

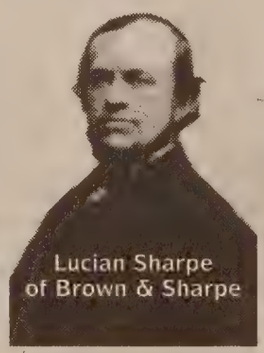
No. 1252 $15.95

The Most Important Tool You Can Own

Some guys are obsessed with having the newest, most sophisticated tools money can buy. But do they build anything with their expensive tools? Rarely. They just like tools.

Tools are important. But the single most important tool you can acquire is knowledge, and that comes from a library of quality books. I have tens of thousands of books, and when I have a question, I can quickly get the advice of a dozen different authors. That advice, in turn, often allows me to build using the simplest of tools.

In other words, if you have no knowledge, you need complicated tools. I NEED a router jig to cut accurate dovetails because I'm not very skilled. But a Colonial cabinetmaker of two centuries ago could cut perfect dovetails with the simplest of equipment. His most important tool was between his ears.


Lucian Sharpe of Brown & Sharpe

The quality of colleges and universities is dependent to a large degree on the size of their libraries. They are constantly trying to enlarge their collection of knowledge, their data base.

So don't obsess about tools. Acquire basic tools, and more importantly, acquire the knowledge you need to use them. Like a university build a library of important books on a wide variety of subjects. It will pay big dividends.

ENGLISH & AMERICAN

Tool Builders

by Joseph Wickham Roe
reprinted by Lindsay Publications

Meet the men who invented and perfected machine tools: Wilkinson, Bentham, Brunel, Maudslay, Pratt & Whitney, Brown & Sharpe, Colt, Whitworth and many more. Fascinating details on how one machine shop merged with another to become the familiar names we know today. Great history. Almost a family reunion. Excellent illustrations. Top recommendation! 5 1/2 x 8 1/2 softcover 416 pages

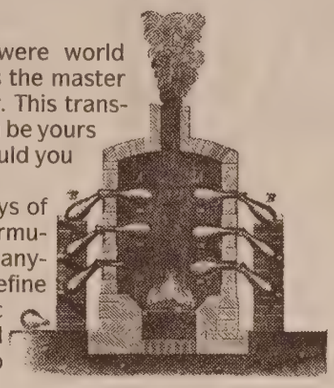
No. 4732 $19.95

HANDBOOK OF

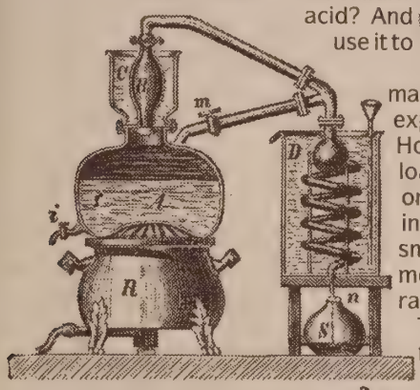
Chemical Technology

by Rudolf Wagner
translated by William Crookes
reprinted by Lindsay Publications

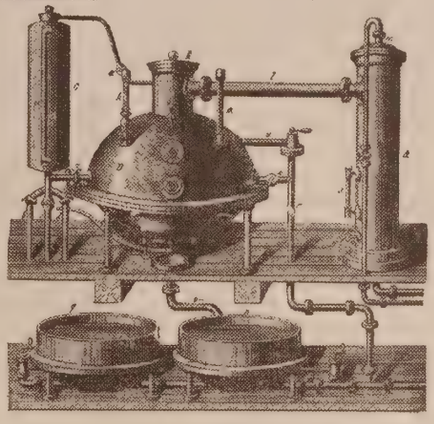
In the 1872 German chemists were world famous, and Wagner's Handbook was the master reference for chemists the world over. This translation of the eighth German edition can be yours for much less that an original copy should you be able to find one.



You'll learn early and/or simple ways of making chemicals, refining metal, formulating glue, paper, dyes or just about anything else chemical in nature. Want to refine iron ore into steel? Want to make sulfuric acid? And use it to make nitric acid? And use it to make explosives? Care to brew beer? How about a batch of whiskey? A loaf of bread? And on, and on, and on. You get a whole encyclopedia in a single volume — 745 pages of small type with 336 illustrations mostly of manufacturing apparatus.



This is not a cookbook. You won't find step-by-step instructions. But you will find more detail on a wider variety of basic essential processes than in any other volume.



Expensive volume, but worth every penny. Quality. But! This is old world thinking. You run the risk of poisoning yourself. These methods can be and probably are dangerous. Order a copy. You won't be disappointed. 5-1/2 x 8-1/2 hardcover 745 pages 332 illustrations

No. 4996 $35.95

Contents

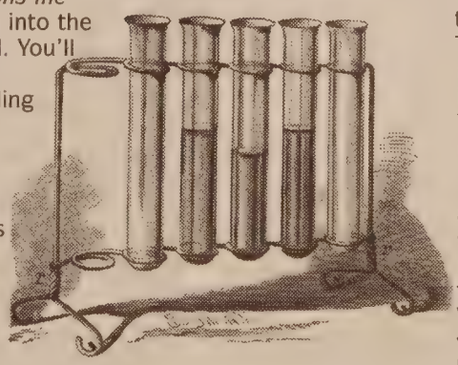
- **Division I** — *Chemical Metallurgy; Alloys; and Preparations Made and Obtained from Metals. Iron; Pig or crude iron; Malleable, bar or wrought-iron; Steel; Iron Preparations; Cobalt; Nickel; Copper; Preparations of Copper; Lead; Preparations of Lead; Tin; Preparations of Tin; Bismuth; Zinc; Preparations of Zinc; Cadmium; Antimony; Antimonial Preparations; Arsenic; Quicksilver or Mercury; Preparations of Mercury; Platinum; Silver; Gold; Manganese and its preparations; Permanganate of Potassa; Aluminum; Magnesium; Electro-Metallurgy*
- **Division II** – *Crude materials and products of chemical industry – Carbonate of Potassa; Saltpeter, Nitrate of Potassa; Nitric acid; Technology of the Explosive Compounds – gunpowder, and the chemistry of fireworks or pyrotechny; Nitroglycerine; Gun-cotton; Common salt; Manufacture of Soda – native soda; Soda from plants or soda-ash; Soda Prepared by Chemical Processes; Preparation of Iodine and Bromine; Sulphur; Sulphurous and Hyposulphurous Acid; Manufacture of Sulphuric Acid; Sulphide of Carbon; Hydrochloric Acid and Glauber's Salt, or Sulphate of Soda; Bleaching Powder and hypochlorites; alkalimetry; Ammonia and ammoniacal salts; Soap making; Boric or boracic acid, and borax; Production of alum, sulphates of alumina, and aluminates; Ultramarine*
- **Division III** – *Technology of Glass, Ceramic Ware, Gypsum, Lime & Mortar Glass manufacture; Ceramic or earthenware manufacture including hard porcelain, tender porcelain, stoneware, Fayence ware, common pottery, brick and tile making; Lime and lime-burning; Mortar including common or air-setting mortar and hydraulic mortar; gypsum and its preparation*
- **Division IV** – *Vegetable Fibers and Their Technical Application – Hemp; Cotton; Paper making – hand paper, machine paper, pasteboard and other paper; Starch; Sugar manufacture; Cane Sugar; Beet-root; sugar; Grape sugar; Fermentation; Wine-making; Beer-brewing; preparation or distillation of spirits – preparation of vinous mash and distillation of the vinous mash; Bread baking; Manufacture of vinegar; Preservation of wood; Tobacco; Technology of essential oils and resins; Cements, lutes and putty*
- **Division V** – *Animal Substances and Their Industrial Application - Woollen industry; Silk; Tanning; Glue Boiling; Manufacture of Phosphorus; Requisites for producing fire; Animal charcoal; Milk; Meat*
- **Division VI** – *Dyeing and Calico Printing - Aniline colours; Carbolic Acid colours; Naphthaline pigments; Anthracen pigments; Pigments from Chinchonine; Red Pigments occurring in plants and animals; Blue dye materials; Yellow dyes; Bleaching; Dyeing of spun yarn and woven textile fabrics; Printing of woven fabrics*
- **Division VII** – *Materials and Apparatus for Producing Artificial Light - Artificial light from candles; Illumination by means of lamps; Gas; Paraffin and solar or petroleum oils; petroleum*
- **Division VIII** – *Fuel and Heating Apparatus - Fuel; Wood; Peat; Carbonized peat; Brown-coal; Pit coal or coal; Petroleum as fuel; coke; artificial fuel; gaseous fuel; heating apparatus; heating dwelling houses; boiler heating and consumption of smoke*

LINDSAY'S

Chemical Cross Reference

by Lindsay Publications Inc

If you haven't run into the problem yet, you will. You'll be reading some old chemical formula calling for mirbane oil, salt of satum, or liver of sulphur. A quick check of this handy list of chemical terms would tell you that you need nitrobenzene, lead acetate, or potassium sulphide.



What we did was enter into our computer two thousand chemical equivalents gleaned from a variety of chemistry textbooks, industrial references, and formularies in our reference library dating back to the early 1800's. The computer merged and sorted the lists into alphabetical order. The result is a chemical cross reference.

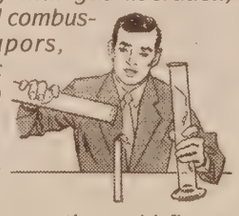
We have kept unusual and probably incorrect spellings. We have made no attempt to verify that the definitions are correct. What we have done is provide you with one master list of the best equivalents we could find. We've already found it useful, and you will too. Get a copy for your reference library. 5-1/2 x 8-1/2 softcover 44 pages

No. 20170 $5.95

Chemical Magic

by L A Ford

"Here is a dazzling array of stunts and demonstrations dealing with gas liberation, color changes, fires and combustion, smoke and vapors, polymerization, specific gravity, crystallization and precipitation and many other chemical processes. Professor Ford provides clear and careful explanations for creating cold fire, a disappearing flame and dust explosions; dissolving a glass in water; turning water to milk and back again to water; producing mysterious balloons, heavy air and magical eggs; and carrying out scores of other intriguing "tricks" with materials available in almost any school laboratory, supply house or home."

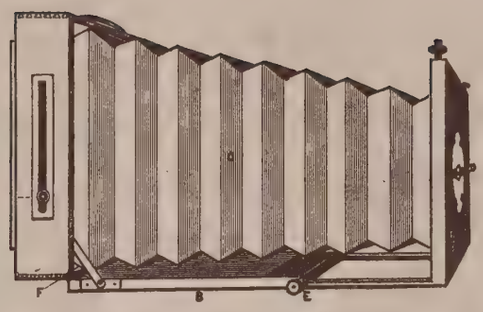


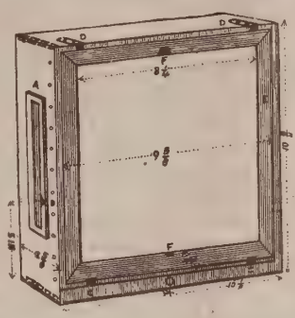
Get a copy and dazzle your friends. Low cost. 5 1/2 x 8 1/2 softcover 128 pp

No. 5050 $6.95

Photographic Cameras and Accessories

by Paul N Hasluck
reprinted by Lindsay Publications



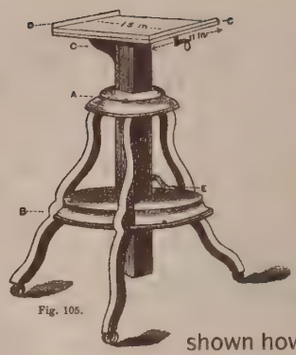


Another hundred-year-old gem from Hasluck's "Work" series!

I get a kick out of the knuckleheads who have super expensive cameras with computer this and automated that, but don't know which end to look into. What a waste! They're not photographers. I've taken better pictures than they ever will with a disposable camera!

If you really want to explore photography, build a camera. It's a great marriage of woodworking, metal working, an understanding of optics, the chemistry of photography and the creativity of an artist.

This series of articles will show you how to test photographic lenses, build modern half-plate cameras, whole-plate and studio cameras, hand and pocket cameras, ferrotype (tintype) cameras, stereoscopic (3-D like Viewmaster™) cameras, enlarging cameras, make dark slides, exposure shutters and even camera tripod stands.



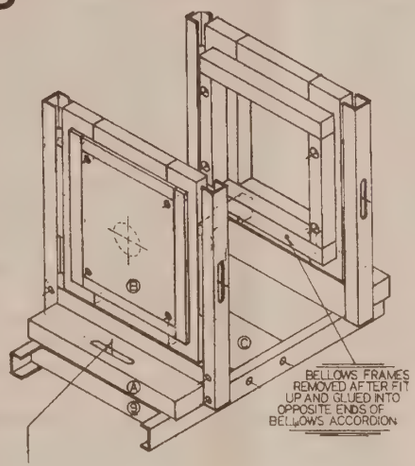
You won't be shown how to grind lenses or process film. This is about building the equipment. The details on bellowsmaking are rare enough to make the book worth ordering.

So build yourself a 1900-vintage photo studio, and see if you can entice the old lady down the street (who was born in 1900) to pose for some "revealing" photographs. (Just don't send me copies...)

Another excellent book. Get a copy!
5-1/2 x 8-1/2 softcover 160 pages
No. 22520 $9.95

Simple Large Format Camera Construction

by E A Hoover



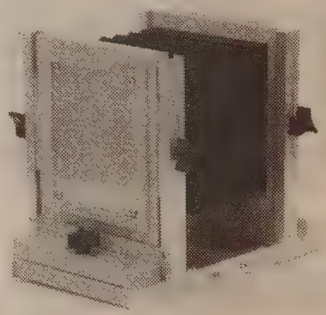
Build a view camera! You know... one of those big ol' cameras with a bellows on a tripod behind which is the photographer under that dark cloth he's thrown over his head. View cameras are collected. And despite inroads made by digital photography, view cameras are still sold. At huge prices. But you can build one.

Here, Hoover will show you how to build the front standard with a sheet aluminum lens board that can be drilled to accept a standard large format lense, or used with a pinhole (lots of fun), or used with an experimental lens of your own design.

The author will show you how to build the rear standard with a spring back that will accept standard 4x5 film holders. A separate insertable ground glass is used for focussing.

Then you'll learn how to build a quality bellows to connect the two standards. You get the hints, tips and recommendations for laying out the bellows pattern, cutting and affixing the stiffeners, and for folding up the bellows.

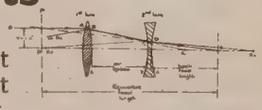
A table saw sure would be useful in building one of these cameras, but if you're handy with tools, you can get by without. If I know you, you'll steal an old pallet somewhere for the wood, and use an old trenchcoat picked up for a quarter at some garage sale! But you can use a pinhole for lens, and enlarging paper for "film", and have lots of fun. I've done it.



Great plans, scalable to other film sizes. You won't end up with a Deardorff, but it will be a quite useable camera. Many of the greatest photographs were taken with cameras no more complicated than this. Get a copy! 6x9 softcover 112 pages
No. 6151 $14.95

Optics and Optical Instruments

by B.K. Johnson



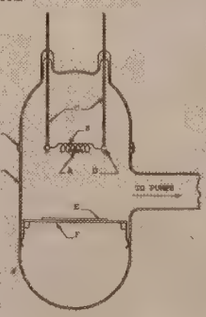
Here's a reprint of a 1947 book that reveals in simple formulas how to design or at least understand microscopes, telescopes, collimators, simple and complex lenses, photographic lenses, mirrors and more.

Chapters include: reflection and refraction, focal length measurements, the eye, the telescope, the microscope, photographic lenses, optical projection systems, working and testing optical glass, plus an appendix describing how to silver mirrors, cement lenses, and more.

You won't need this material everyday. But if you need basic info on lenses without all the complex theory, get a copy of this. Quite reasonably priced. 5 1/2 x 8 1/2 softcover 224 pages
No. 551 $10.95

How to Make Mirrors

reprinted by Lindsay Publications



"The Brashear, Rochelle salt, and formaldehyde formulas are given, together with a detailed discussion of the precautions which should be taken to avoid danger and the technique which has been found to yield the most satisfactory results at the bureau. Methods are also given for the production of reflecting films on glass by the chemical deposition of copper, platinum, or lead sulphide, by cathode sputtering, and by the condensation of vaporized metals."

Be warned that should you mix some of the chemical too strong, there may be a dangerous explosion. But the manual goes into great detail about eliminating the dangers, and the practice of silvering. It is written for the beginner and leaves very little to the imagination. A reprint of a 1931 booklet issued by the Bureau of Standards. Excellent! 5-1/2 x 8-1/2 booklet. 15 pages 2 drawings.
No. 885 $3.00

Prices and Availability are subject to change without notice.

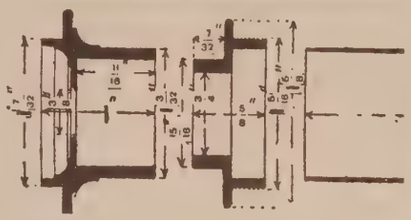
That means even if you got this catalog five minutes ago, some of the books listed in here might no longer be available, or may have gone up in price by several dollars. No catalog is accurate for very long. The world is constantly changing.

Telescope Making

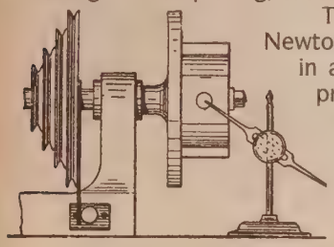
by Paul N. Hasluck
reprinted by Lindsay Publications

Yes, another in the century old Hasluck series. Since WWII building your own telescope meant buying large glass discs and abrasives and waltzing around a barrel to grind the discs into a mirror. Once mounted into a tube, the mirror became a reflecting, or Newtonian, telescope. But not this one.

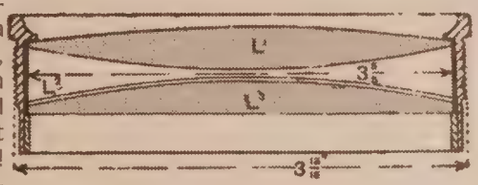
Here you learn to build a large astronomical refracting telescope with a 3-1/2" objective and a body tube four to five feet long. If you put an erecting eyepiece on it, you can use the scope for terrestrial viewing (for you perverts, that means spying on the neighbor lady). You might want to build the small finding 'scope that sits on top with it's 12" or so long tube.



Contents include: materials for telescope making, making the mounting, making the clasp and clamp. vertical and horizontal slow motions, telescope body, lenses for the telescope, object end, eyepieces, finder and steadying rods, finishing and lacquering, erecting and adjusting the telescope.



This, of course, won't perform like a Newtonian telescope if you're truly interested in astronomy. But it could make a great project if you have a lathe and build it from brass tubes with all the accessories. Lathe or not, you might even be able to adapt the principles to build a scope using some of the huge surplus copy machine lenses I've seen advertised in liquidator's catalogs.

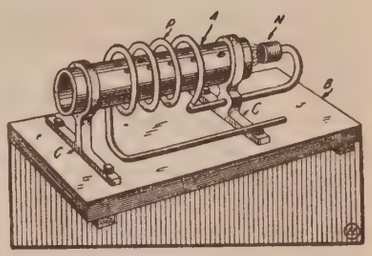


Lots of detail. Interesting info. So build a scope, put it to your eye, put a dead chicken on your shoulder and tell everyone it's a parrot and that you're a pirate! A black eye patch is optional. Get a copy! 5-1/2 x 8-1/2 softcover 160 pages
No. 22849 $9.95

A Thousand And One Formulas

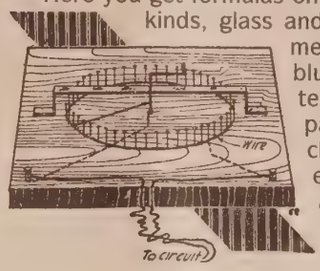
THE LABORATORY HANDBOOK FOR THE EXPERIMENTER

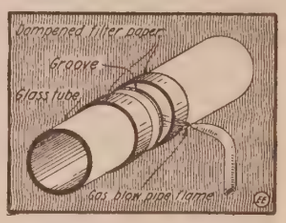
by Sidney Gernsback
reprinted by Lindsay Publications



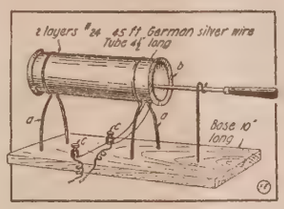
Back in 1920 people were hot to set up their own laboratories and invent something and become rich. Experimenter Publishing Company published books and magazines to whet their appetite. They reprinted the best information from the magazines in this book.

Here you get formulas on cements and glues, compositions of all kinds, glass and glass working, inks, leather polishes, metal-craft, perfumes, soaps, photography, blue-print and other papers, plating, pyrotechny, polishes and stains, varnishes and paints, cleaning compounds, wood-craft, chemical lab hints, mechanical lab hints, electrical lab hints, miscellaneous formulas and an appendix.





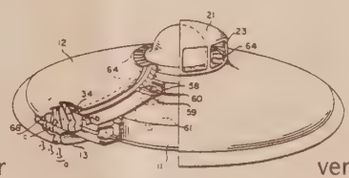
Not everything here is useful in my opinion, and some of it is downright dangerous. Some of this looks like it came out of the Boy Mechanic books. Learn how to convert coin silver into pure silver, formulas for solders, lithographic ink, how to make a gasoline torch, recipes for killing flies, proper use of sulphuric acid, hand grenades ???, flashlight powder like the old photographers once used, how to make gas (you need a book for this??), homemade carbon crucible, methods to copper-plate carbon motor brushes, and on and on.



A lot of this is quaint, and not directly useful. It's for kitchen chemists. But a few of the formulas and ideas are worth the entire price of the book. If you're trying to build a master reference library of unusual secret formulas, this book is certainly worth considering. Check it out. It's been five or six years since I last offered this, I believe. I wouldn't have reprinted it if I didn't think it had merit. Fun reading if nothing else. Get a copy! 51/2 x 81/2 paperback 160 pages
No. 20811 $9.95

Suppressed Inventions

AND OTHER DISCOVERIES



by Jonathan Eisen

"True stories of suppression, scientific cover-ups, misinformation, and brilliant breakthroughs"

True? Not likely. Interesting reading? Without a doubt! 'Course maybe you're one of those people who want to believe that 200 mpg carburetors were for real, or that Moray could really extract free energy from the atmosphere. This is one of the most interesting collections of bizarre science and technology I've ever seen.

Chapters include: suppression of alternative medical therapies, of unorthodox science, of UFO technologys and Extraterrestrial Contact, and of Fuel Savers and Alternate Energy Resources.

Within each chapter are articles written by various authors. Most are illustrated and supplied with a bibliography so that you can "discover the truth" through further research. Some of the articles are merely transcripts of newspaper articles, while others are the personal research of the author. Most of it is fascinating.

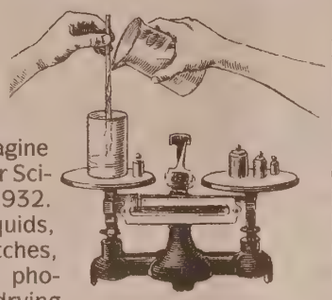
Topics covered include oxygen therapies, Gerson's nutritional therapy for cancer, polio vaccines and the origins of AIDS, scientist with attitude: Wilhelm Reich, the neurophone, antigravity on the rocks: the TT Brown story, UFOs and the CIA, Tesla's controversial life and death, transmission of electrical energy without wires, story of Francisco Pacheo, the Charles Pogue story, and lots more.

You'll find brief articles on all kinds of miracle machines that were never produced, no doubt, because they were "suppressed". Topics include: the Bascel Carb, Kendig Carb, the Dresserator carb, water-to-gasoline conversion, the water and alcohol engine, the Alexander fuelless car system, the Bourke engine, the laForce engine, the Papp engine, two chamber combustion, magna-pulsion engine, the Hendershot generator, the Dean space drive, the Laithwaite anti-gravity machine, and on and on. More wild stuff than you can shake a stick (or tire iron) at...

So if you're intending to extract limitless free energy from a vacuum, build a cold fusion reactor, or visit the moon in your antigravity flying saucer, you'll find this a valuable research tool. For the rest of us with our feet on the ground, it's a fascinating study of misinformation, myth, and distortion.

Good book, no matter how you slice it. Get a copy! 6x9 softcover 546 pages – NOT heavily illustrated
No. 7010 $16.95

Manual of Formulas, Recipes, Methods and Secret Processes



edited by Raymond Wailes
reprinted by Lindsay Publications

Here's a great low cost collection of hundreds of formulas on just about every subject you can imagine compiled from the pages of Popular Science Magazine and published in 1932.

You can make soap bubble liquids, solidified gasoline, waterproof matches, lacquer for brass, silver solder, photographic printing paper, slow-drying putty, blackboard paint, thermite welding mixtures, pewter alloy, garden sprays, soaps, preparations for dance floors(?), concrete waterproofing compound, fireworks, cosmetics, adhesives and much more.

You'll learn how to mix up compounds for polishing and plating metal. Learn how to blacken brass, blue steel, to make silver nitrate from old spoons, mix up low temperature alloys, dry flowers, brew wine, re-ink typewriter ribbons, make blueprint paper, dye cloth, make flypaper and much more.

Unlike other formularies, this one is new enough to be useful and old enough to have unusual formulas. Very reasonable price. Interesting book of definite value. Order a copy today. 4 1/2 x 8 softcover 250 pages

No. 20366 $9.95

Crystals & Crystal Growing

by Holden & Morrison

Crystals exist in everything from your TV set to the castings you pour. Learn about what crystals are and how they grow. Learn how to grow your own, easily and inexpensively.

Chapters include: solids and crystals, solutions, solubility diagrams, two methods for growing crystals, building blocks for crystals, twelve recipes, symmetry, arrangements of atoms, cleaving and gliding crystals, melting and transforming, piezoelectric effect, optical experiments and more. You also get sources of supplies, making a spectroscope, suggestions for research, more books and articles.

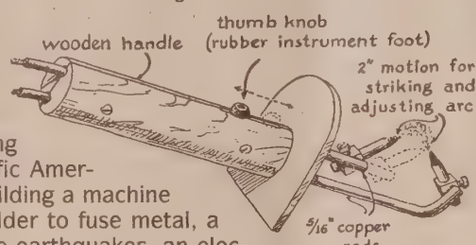
Easy to read and understand. First published in 1960, so you know it's a good book. A great science fair project. 5x8 softcover 318 pages

No. 546 $21.95

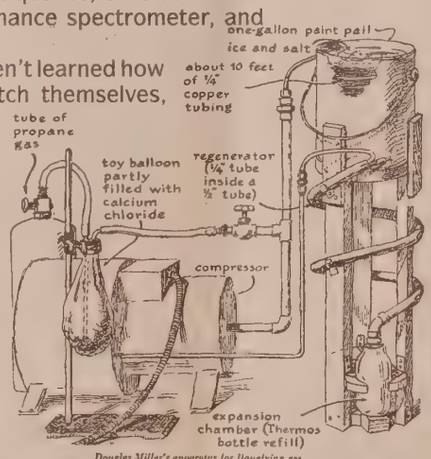
The Amateur Scientist

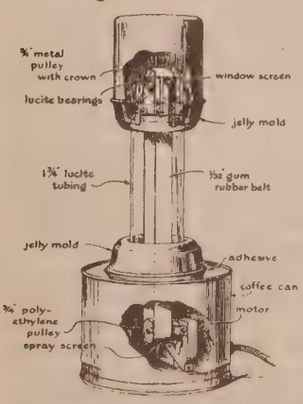
from the pages of Scientific American Magazine

While other boys were out on the baseball diamond learning how to spit and scratch themselves in intimate places, I was home reading these articles in Scientific American dreaming about building a machine to liquify air, a spot welder to fuse metal, a seismograph to measure earthquakes, an electronic nose, a magnetic resonance spectrometer, and on and on.



Today those little boys haven't learned how to do much more than scratch themselves, spit and pass gas. I can do all that too, but I also build bizarre experimental equipment. And they wonder how I do it. They never quite figured out how I acquired the knowledge. This collection of articles from the AMATEUR SCIENTIST column appearing in SCIENTIFIC AMERICAN starting in 1929 was my secret. If you have a computer, you can read more than 1,000 articles stored on this CD-ROM. It's all there. Everything I read, and so much more.


one-gallon paint pail
ice and salt
about 10 feet of 1/4" copper tubing
tube of propane gas
toy balloon partly filled with calcium chloride
regenerator (1/4" tube inside a 1/2" tube)
compressor
expansion chamber (Thermos bottle refill)
Douglas Miller's apparatus for liquefying gas



These articles are beautifully illustrated by Roger Hayward, and reveal not dreams, but successful pieces of equipment from atom smashers to wind tunnels that have been built and successfully operated. This is not detailed how-to. You're expected to have some initiative, a brain in working order, and some imagination.

Buried somewhere on the piece of plastic, I know, is an article on fabricating a transistor and on building an operating fuel cell. But I still want to build a replica of Milliken's apparatus and measure the charge on a single electron.

Almost any area of science is covered here: astronomy, archaeology, earth science, physics, and much more. Also included are reference materials and laboratory how-to and some advertising.

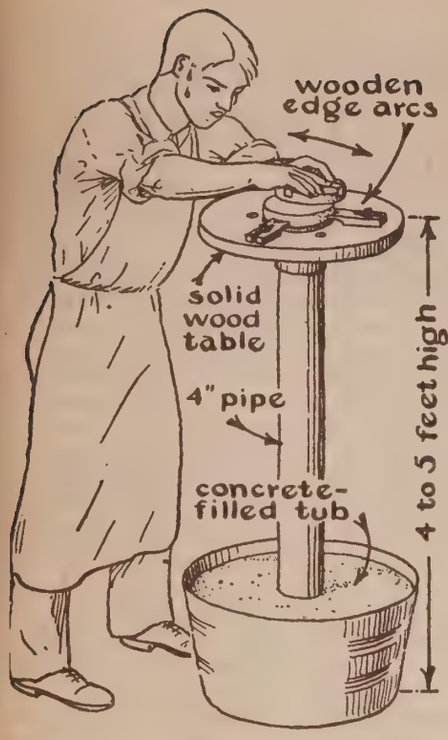
It's a phenomenal collection. I have three-ring binders filled with photocopies of the original articles. You can have those secrets and much more in one package for a lot less than it cost me.

Two CD-ROMs for Mac and PC with a search engine. A PC will need at least 32 meg of RAM. Great stuff. Non-returnable. Translation: You may NOT return this for refund, but it will be replaced if defective.

No. 5092 $25.95

Just a Few of More than 1000 Articles

An Observatory Built By a High-School Senior and How to Construct a Famous Spectroscope • About Historic and Modern Machines for the Generation of Static Electricity • Concerning an Electrophoresis Apparatus to Separate the Components of a Mixture • About the Making of a Coronograph to View the Prominences of the Sun • Some Simple Apparatus for Studying the Dynamics Airflow and Waterflow • About Experiments with Sound for the High-Fidelity Enthusiast • How Two Distinguished Amateurs Set about Refining the Accuracy of a Pendulum Clock • Some Delightful Engines Driven By the Heating of Rubber Bands • Making Fluids into Solids with Magnets • Electrostatic Motors Are Powered By Electric Field of the Earth • A Homemade Device for Testing Particle Scattering; Experiments in Zero Gravity • How to Build a Machine to Produce Low-Energy Protons and Deuterons • About Home-Made Cloud Chambers and the Fine Telescope of a Portuguese Navy Officer • A High School Student Builds a Plasma Jet Generator That Attains Solar Temperatures • A Homemade Interferometer: the Instrument That Can Be Used to Measure a Light Wave • A Homemade Laser That Emits Powerful Bursts of Green and Yellow Light • Moire Effects, the Kaleidoscope and Other Victorian Diversions • Making an Apparatus That Will Measure the Acidity or Alkalinity of Solutions • How to Construct a Gas Chromatograph That Can Measure One Part in a Million • How to Blow Soap Bubbles That Last for Months or Even Years • How to Make an Electrochemical Cell and Also an Unusual Kind of Sundial • A Plan for an Analogue Computer That Can Be Built for about $40 • Experiments with Wind: a Pendulum Anemometer and Miniature Tornadoes • How to Build a Simple Seismograph to Record Earthquake Waves At Home • Old Refrigerators Are Salvaged to Build a Laboratory Cooler and Gas Liquefier • Two Devices for Electric Welding, One Using a Carbon Arc Torch and the Other a Rattrap • How to Make Dazzling Photomicrographs with Simple and Inexpensive Equipment • Observations on Grinding Glass By Hand and on Making the Most of a Fireplace • Concerning Homemade Vacuum Pumps



Procedures in Experimental Physics

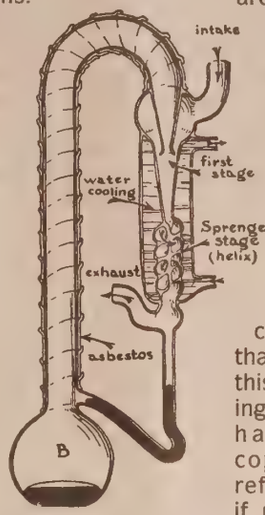
by John Strong

If you consider yourself an experimenter, an inventor, or a builder of unusual machines and equipment, you must have a copy of this fantastic classic text. No two ways about it.

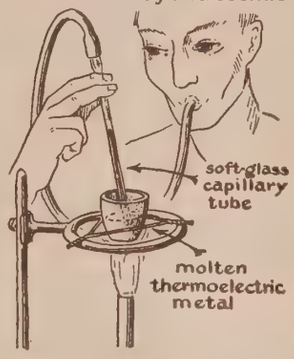
You'll find wall-to-wall practical how-to and incredible illustrations on almost every one of the more than 600 pages. Chapters include: laboratory glass blowing, laboratory optical work, technique of high vacuum, coating of surfaces by evaporation and sputtering, the use of fused silica, electrometers and electroscopes, Geiger counters, vacuum thermopiles and the measurement of radiant energy, optics, photoelectric cells and amplifiers, photography in the lab, heat and high temperature, notes on the materials of research, notes on the construction and design of instruments and apparatus, and molding and casting.

This is some incredible stuff! Learn how to blow glass and make aspirators, distillation condensers, and so on. Learn how to seal copper to glass so that you can imbed electrodes. Learn how to rough cut lens blanks from large plates of glass and then grind them into lenses on your homebuilt lens grinder. Learn how to make a parabolic telescope mirror using the standard techniques. Learn to make unusual equipment to test the finished mirror. Learn how to grind a Schmidt lens.

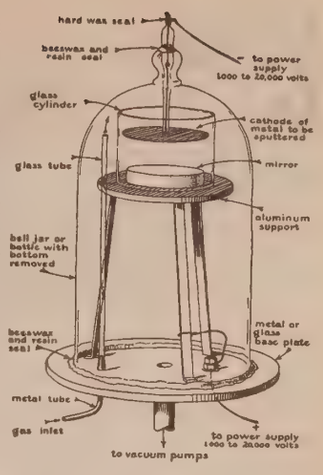
Build high vacuum roughing pumps, getters for creating the highest vacuums, diffusion pumps using mercury and oil and much more. Silver mirrors, even with aluminum! Manipulate fuzed quartz strands to build a microbalance sensitive down to a billionth of a gram per division! And there's so much more!



Build a Compton adjustable quadrant electrometer, a Hoffman electrometer, and others useful for x-ray and cosmic ray work. Build a Geiger counter. You can build your own Geiger-Mueller tube if you master the high-vacuum technique taught earlier. Unfortunately, most of the electronics described is based on vacuum tubes of fifty years ago rather than on transistors.

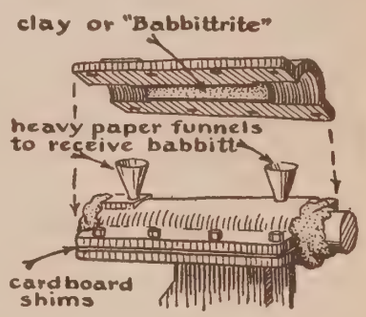


Build vacuum thermopiles that measure infrared, visible light and ultraviolet so accurately that they can be used to calibrate photographic lightmeters and such. You've heard of carbon arc lights, but do you know how to build iron arc lights? Or low pressure mercury arc lights? And others? You can even build a machine to measure the wavelength of colored light.



You'll find details on hydrogen furnaces, crucibles, burners, electric arc furnaces, and even a lab setup for making artificial rubies and sapphires! And there's much more - even down to what we consider the "easy stuff" like using a lathe and sand casting.

This is a fantastic book loaded with construction secrets for unusual equipment that you should have. First published in 1938, this baby went through a couple of dozen printings! It's a classic. It's incredible. You should have a copy for reference if nothing else. Highly recommended. Order a copy today.



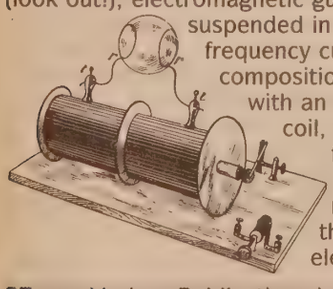
5 1/2 x 8 1/2 sewn softcover 642 pages
No. 4562 $25.95

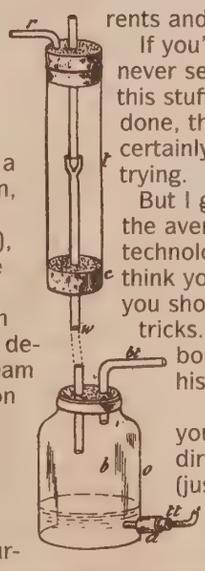
Simple Scientific Experiments

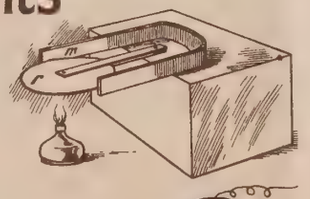
by Aurel de Ratti
reprinted by Lindsay Publications

"Describes forty-six instructive experiments in electricity, magnetism, hydraulics, hydrostatics, light and acoustics."

From a century ago. You can build a model hydraulic ram, acoustic fountain, vortex (smoke) rings, flour explosive, manufacture of gas (no beans needed), static electric motor, cheap x-ray tube (look out!), electromagnetic gun, pea suspended in air, high frequency currents, decomposition of steam with an induction coil, fiery or flaming vortex ring, thermoelectric currents and more.







If you've never seen this stuff done, then it's certainly worth trying.

But I guarantee you that the average American is so technologically ignorant, he'll think you're a genius when you show him one of these tricks. (Detonate the flour bomb, and watch 'im wet his pants!)

Simple, fun experiments. Amuse yourself and others. Great quick-n-dirty science fair projects. Cheap! (just like you)... so get a copy!5-1/2 x 8-1/2 softcover 69 pages

No. 22660 $8.95

101 AMAZING

Optical Illusions

by Terry Jennings

"You won't believe your eyes! Find out why some solid objects cannot exist. Make a hole in your hand. Watch straight lines stand up and make a magic carpet fly. Create your own screen play for a movie strip. Get a taste of virtual reality - and watch a 3-D scene emerge before your eyes. Build your own stroboscope and make the world stand still. And many more mind boggling optical illusions."

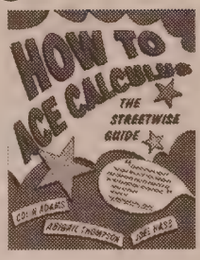
You get a picture book of optical illusions – some old standards and modern variations. Every page is in color with minimal text. After all, it's written for kids. And if I know you, that means you'll have to enlist the aid of an eight year old to explain it to you!

Fun book. No useful value other than to convince you that you're going blind! Get a copy! 8-1/2 x 11 softcover 87 pages

No. 7017 $10.95

HOW TO

Ace Calculus



The Streetwise Guide
by Adams, Thompson and Hass

"This book is dangerously clear, direct and funny. It should be suppressed before it jeopardizes the time-tested function of the calculus sequence to befuddle and filter surplus students." –Wm Thurston, Prof Math, Univ Cal Davis.

I agree. I've seen many math texts. Only a few are readable. Some are great. This is one is on my list of the top five. It may be aimed at students, but it's useful for those of us who need to review.

Chapters include: how to handle the exam, lines and circles, limits: you gotta have them, what is a derivative?, derivatives: how to find them the easy way, velocity: put the pedal to metal, maxima and minima, integration: doing it all backward, doing that calc thing to exponents and logs, fancy-pants techniques of integration, and much more.

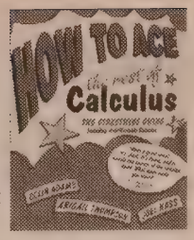
This is clearly written, and funny.

"The derivative of ex is just ex again. That's kind of like giving birth to yourself, a very difficult event to achieve and one that would get you major tabloid coverage." (This is a math book? Wow!)

Covers all the foundations of calc. Good one. Get one. 7 1/2 x 9 1/2 softcover 230 pp
No. 5061 $16.00

HOW TO ACE

The Rest of Calculus



by Adams, Thompson & Hass

More great material!

" 'Rest of Calculus' provides humorous and highly readable explanations of the key topics of second and third semester calculus — such as sequences and series, polar coordinates, multivariable calculus, — without the technical details and fine print that would be found in a formal text.

'Rest' shows why learning calculus can be not only a mind-expanding experience but also fantastic fun!"

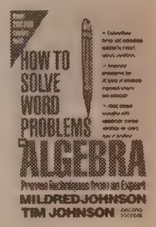
But there's the clincher. The term "mind-expanding." That implies that the reader has a mind, and I have serious doubts about the average American. I'm convinced that only a few people are interested in expanding their intellect. Since you're reading this catalog, I'm assuming you're one of them!

Lots of good things to explore like partial derivatives, triple integrals, the Taylor series, vectors, and much more. You may not need to be an expert in using this type of math, but you MUST know what these concepts are about if you're to read and understand technical papers written by top-rung scientists and engineers.

Good book. As good as the first. And a lot of book for the money. Consider it carefully. 7-1/2 x 9 softcover
No. 5084 $16.00

HOW TO SOLVE

Word Problems in Algebra



by Mildred Johnson

I cringe when I hear someone say they didn't mind math in school, but they hated story problems. That's usually when I blast them. I tell them that what they studied wasn't math, it was arithmetic. Life is a story problem, and the application of arithmetic to solve such problems is what math is all about. I use math in mixing chemical solutions, building radios, calculating return on investments, brewing wine, and a thousand other things.

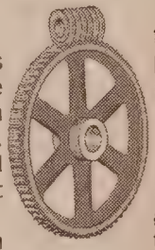
Chapters include time, rate, and distance; mixtures; coins; age; levers; finance; work; plane geometric figures; digits solutions using two unknowns; quadratics; and miscellaneous problems.

Joe can paint the barn in 5 days, and George in 8 days. They start painting but after 2 days, George accidentally locks himself in the outhouse and can't get out. How long will it take Joe to finish painting the barn? You should be able to figure this out. (Although no one will ever quite know how George got himself locked in...)

Practical everyday math. You SHOULD know this stuff. Get a copy and learn.
5 1/2 x 8 softcover 166 pp
No. 5014 $9.95

Practical Mathematics for Home Study

by Claude Palmer
reprinted by Lindsay Publications



Math is important to mechanics and machinists. It can mean the difference between having a design fail or getting it right the first time. If you're rusty on your math and need a good review, this is a great book to have.

Chapters include common fractions, decimal fractions, short methods, weights and measures, percentages, ratios and proportion, density and specific gravity, and powers and roots.

The geometry chapters cover plane surfaces, triangles, circles, graphical methods, prisms, cylinders, pyramids and cones, spheres, and other solids.

The algebra chapters include notation, formulas and translations, positive and negative numbers, addition and subtraction, exponents and powers, quadratic equations, variation, graphics, logarithms, angles, trig functions, trig tables, right triangle, and more.

You'll learn the math in short, clearly explained lessons. Then you'll be asked to solve problems like "Two steam boilers of the same shape are respectively 12 ft and 15 ft long. Find the ratio of their surfaces." After you solve the problem, you can check it against the answer given.

Another problem asks "To what diameter should a piece of stock be turned so that it may be milled to a hexagon and be 1 3/4 in. across the flats?" You'll be able to solve these and hundreds of other problems.

You get a big book loaded with valuable lessons and practical problems. Get a copy and get going. 5 1/2 x 8 1/2 softcover 518 pages
No. 4775 $19.95

Thinkertoys

by Michael Michalko

Every human bean (or is it being?) has a tendency to get into predictable ruts, especially in his thinking. Tell someone something, and they're likely to believe it. They never question it. So how creative do you think these people are? Right. Zero.

People think I'm really creative on one hand, but get really upset with me because I question what they believe and almost everything they say. This book will teach you valuable techniques for looking at the world, throwing out the accepted BS, and ask "What's really happening here?". When you do that, you're well on your way toward being creative.

"In hindsight, every great idea seems obvious. But how can you be the person who comes up with those ideas? THINKERTOYS makes it easier with over 30 meticulously outlined techniques, and hundreds of hints, tricks, tips, and tales to turn anyone into a startlingly creative thinker...

[It] will teach you to generate ideas for new businesses, new products, product extensions, new markets, and new sales techniques..."

I know from experience that creative people make the world go around. Ask Tom Edison. Get hot! Get a copy of this and be a winner. 7 1/2 x 9 softcover 335 pages
No. 5016 $19.95

HOW TO

Calculate Quickly

by Henry Sticker

"Do you want to double or triple the speed with which you calculate? Can you check bills worked out for you by grocery store cash registers, on waiters' checks? Or do you simply take their word for the disposal of your money?... This book teaches those necessary mathematical techniques which schools neglect to teach: Horizontal addition, left to right multiplication and division, etc. ..."

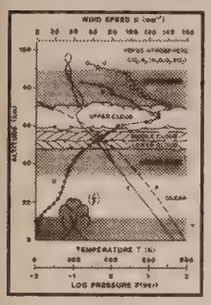
If you're not afraid of a milling machine or a ladle full of molten metal, then why should you be afraid of numbers? Dirt cheap. Get a copy. 5 1/2 x 8 softcover 185 pages
No. 598 $5.95

The Lightning Discharge

by Martin A. Uman

From the backcover:

"In this readable, absorbing, up-to-date monograph, one of the nation's foremost experts on lightning sets forth most of what has been learned about the subject. To make the material more easily understandable, the author has organized the chapters primarily by lightning process. Following a general introduction and chapters on lightning phenomenology and cloud and lightning charges, he looks into the types and stages of lightning, with chapters on the stepped leader, the attachment process, the return stroke, the dart leader, continuing current, J- and K-processes in discharges to the ground, positive lightning, upward lightning and the artificial initiation of lightning, and cloud discharges. In the final two chapters, Dr. Uman investigates lightning on other planets and examines the phenomenon of thunder.



Each chapter contains a reference list, and the book as a whole is augmented with a generous selection of diagrams, charts, and photographs. Appendices on electromagnetics, statistics, and experimental techniques help to clarify some of the concepts covered in the text. A fourth appendix lists relevant books...."

One chapter toward the end reveals cameras and electronic circuits for measuring and recording lightning events. And every chapter includes an extensive list of books and professional articles that will lead you to much more information.

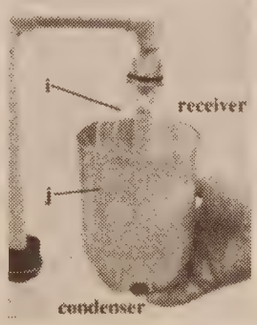
This was originally published in 1987 but was corrected and updated in 2001. A bit expensive, but you'll be hard pressed to find a better book about lightning. It's not the usual fluff. It's written by a scientist for other scientists, but it's still very readable. More info than you'll ever have time to explore. Get one! 5-1/2 x 8-1/2 softcover 377 pages

No. 5109 $17.95

Caveman Chemistry

by Kevin Dunn

"Twenty eight projects from the creation of fire to the production of plastics."



Some people seem to think automobiles, camcorders, and plastics grow on trees. Suggest to the bonehead that SOMEONE had to design the product and SOMEONE had to create the raw materials that went into it, and they're stunned. If you suggest to them that real people can smelt metal from ore, make a battery, make their own photographic film, explosives or plastics, and they just won't believe you. But this book shows how you CAN do just those things. You essentially are shown how to be a caveman chemist.

This book is expensive, but it delivers exceptionally rare info on making basic substances from fire and paper to mead and soap. Each chapter is loaded with chemistry theory and actually shows you how to perform the experiment and relive ancient history. Well, plastics aren't THAT ancient...

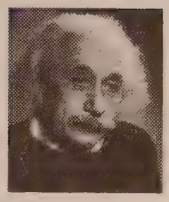
Obviously, this is a chemistry book. And it's written in a lively, entertaining way. It's loaded with scientific details, safety warnings, history, questions and answers, and so on. I think anyone who has an interest in the history of technology and likes to tinker should have a copy of this in his reference library. I have good reason to believe that this book won't be around forever, simply because there are too few people who can appreciate it and will buy it. So get it now... while you can.

Again, this is expensive. But one quick thumb-through, and I knew it had to be offered. Great projects. Great lessons to learn. Great ideas. Consider it carefully. 5-1/2 x 8-1/2 softcover 409 pages

No. 5103 $29.95

RIDDLE OF

Gravitation



by Peter Bergmann

Gravitation is a mystery. We don't know what it is, but we can accurately describe and predict what it does. This non-mathematical introduction for the layman first deals with Einstein's theory of relativity and then discusses topics "from Newtonian physics through Einstein's discovery of the relativity of time and space, to the fusion of time and space into a four-dimensional whole by Hermann Minkowski.

"Part Three is devoted to recent developments, including the search for gravitational waves, the quantum theory of gravitation, particle motion and other topics. Five appendixes contain mathematical derivations for the reader who desires a more technical treatment of the subject.

"Professor Bergmann has also added updated material on gravitational radiation detectors, current problems in cosmology, the significance of singularities of the gravitational field and more. The result is a fascinating excursion into the rarefied world of theoretical physics, yet one that is well within the grasp of the nonphysicist..."

This is a neat book. Maybe with this I can build an anti-gravity machine. Fat chance. Get a copy. Very reasonable price. 5 1/2 x 8 1/2 softcover 234 page

No. 793 $10.95

Gravity

by George Gamow

Gamow was a world famous physicist who knew all the big name physicists personally from Niehls Bohr and Albert Einstein to Dirac and Heisenberg. But Gamow's claim to fame is that he could write clearly turning the complex world of physics into something you and I can understand.

Here Gamow covers the ideas about gravity from Galileo, Newton and Einstein, but most is about what we known and can learn from Newton's observations.

Chapters include how things fall, the apple and the moon, calculus, planetary orbits, the earth as a spinning top, the tides, triumphs of celestial mechanics, escaping gravity, Einstein's theory of gravity, and unsolved problems of gravity.

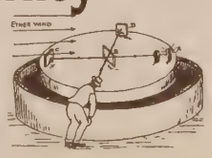
Newton was forced to invent the calculus, one of science's most important mathematical tools, to describe the motion of the planets. Gamow will explain how he did that. Beyond that, there is not all that much math.

Another great book by Gamow. I enjoyed his books as a kid, and still do. I think you will, too. Get a copy! 5-1/2 x 8-1/2 softcover 160 pages

No. 2054 $7.95

One, Two, Three, Infinity

FACTS AND SPECULATIONS OF SCIENCE



by George Gamow

Gamow was a physicist with boundless curiosity about the real world around him. And this 1947 classic reveals why he didn't waste his time with B.S.

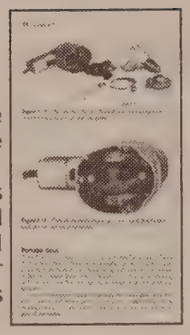
Gamow takes the reader "inside" the worlds of science and math (as if any of us were really excluded) and reveals the magic of large numbers, real and artificial numbers, unusual properties of space, the world of four dimensions, the relativity of space and time, modern alchemy, the law of disorder, expanding horizons and more.

He'll explain in simple terms the magic of cosmic ray showers, what happens when a deuteron hits another deuteron, how to turn a double apple eaten by worm into a doughnut (magic of topology), bizarre properties of the periodic table, how a cyclotron works, effects of temperature on disorder, measuring the distance of the moon and planets, how we can tell how large atoms are, the techniques of Roemer and Fizeau to measure the speed of light, and more.

A great book for the curious. No how-to. Just some of the essential knowledge we need to appreciate the universe in which we live. Get a copy. 5-1/2 x 8-1/2 softcover 340 pages

No. 574 $10.95

Audel's Electric Motors 6th Ed



by Miller & Miller

Here's a thick ol' paperback covering motors from top to bottom. It's expensive, but it's good. It delivers.

Chapters include: motor principles, small dc and universal motors, commutators and brushes, split-phase motors, capacitors start motors, shaded-pole motors, three-phase motors, three-speed and instant reversing motors, steppers and synchronous motors, wound rotor motors, fractional horsepower motors, motor selection and replacement, motor calculations, modifying motors, switches and relays, motion control, motor control methods, motor repair tools, motor repair supplies, general maintenance, shafts and bearings, misc info, and wiring diagrams.

This 704 page monster covers almost all aspects of motors. It has been around for a while. Some of the photographs look fuzzy because they been copied from early editions so many times, but they're okay, and this edition came out in 2004.

You'll learn how motors work, how to wire them, and how to make basic repairs. I saw nothing on rewinding or running three-phase motors on single phase power.

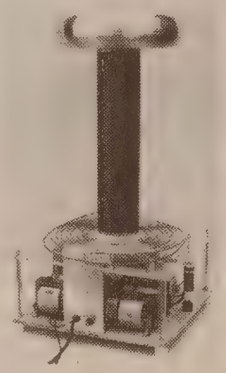
I've come across a number of free motors with "burned out" starter windings. Nuts. The only thing wrong with them was a problem with the centrifugal starter switch. They were easy to fix. You can do the same. That secret and many more are in here.

I'm gonna keep a copy of this in my reference library. It seems to cover almost everything. Consider one for yourself. 5-1/2 x 8-1/2 softcover 704 pages heavily illustrated

No. 3114 $29.95

Electronic Gadgets

FOR THE EVIL GENIUS

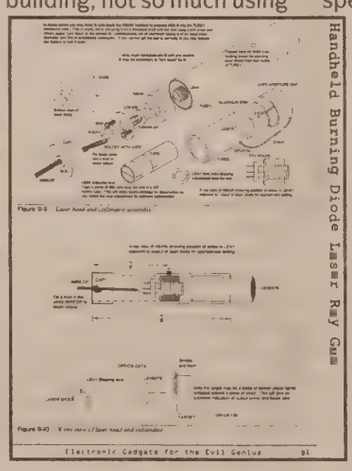


by Bob Iannini

You get 28 bizarre projects that will certainly get you labeled as a mad scientist.

Projects include: antigravity project, low-power electrokinetic gun, high-energy pulser, mass accelerator, plasma thermal gun, wire-exploding project, magnetic can crushing, handheld burning CO2 gas laser, handheld burning diode laser ray gun, long-range optical laser project, laser property-protection fence, laser window bounce listening device, twelve inch spark Tesla coil, two-inch spark Tesla coil with timer, Tesla plasma and Ion projects, solid-state Tesla coil, thirty-inch-spark Tesla lightning generator, traveling plasma Jacob's ladder, amazing plasma tornado generator, plasma light saber, ion ray and charge gun, see-in-the-dark project, fish stunning and wormer project, and electromagnetic pulse generator.

You get VERY unusual information on projects that have been built and operated successfully. These are all totally useless projects, but then so is building a Stirling engine. What are you going to do with the machine after you've built it? Any truly creative person will tell you that's not a problem because the joy is in the process of building, not so much using the final product.



Handheld Burning Diode Laser Ray Gun

Because this book covers so much territory in one book, the plans are useable only if you have experience building electronic projects from scratch. And you'll need mechanical experience, too. Too many great electronic projects I've seen were put into metal cases that looked like they were fabricated with a hatchet from an old auto fender. That won't cut it here. You need tools and the knowledge to use them.

I think most of what is here are merely dreams for most people, and a starting point for experienced builders. This stuff uses high current and high voltages in many cases and has the potential to kill you.

This is of value if you want to build an anti-gravity lifter using 30,000 volts of dc, or a 2000 joule aluminum ring cannon, or a Tesla coil that uses four 220 volt to 4000 volt transformers. Great high energy experiments. Some guys whine they don't know where to find the parts to build old time radios (which are much simpler). Where you're going to get some of the components specified here is a mystery to me.

Great, rare info. The projects do not look easy to build (impossible for beginners). The components may be difficult and/or be expensive. But you WILL get a fascinating look into how these kind of machines are built and how they operate.

This is no doubt a compilation of the strange plans the author has sold over the years from ads in electronics magazines individually for much higher prices. Overall, an excellent book. Consider it carefully. 8-1/2 x 11 softcover 302 pages

No. 3116 $24.95

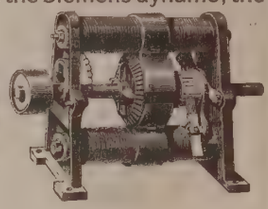
Dynamos & Electric Motors

HOW TO MAKE THEM AND RUN THEM

by Paul N Hasluck
reprinted by Lindsay Publications

Another gem from Hasluck. You get a collection of articles from "Work" magazine of which Hasluck was editor describing how to build your own electrical equipment.

Chapters include: the Siemens dynamo, the Gramme dynamo, the Manchester dynamo, the Simplex dynamo, calculating the size and amount of wire for small dynamos, ailments of small dynamo-electric machines, small electric motors without castings, how to determine the direction of rotation of a motor, how to make a shuttle-armature motor, fifty-watt undertype dynamo, and a four-hundred-and-forty-watt Manchester type dynamo.

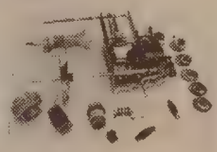


Some of the motors and dynamos are small table-top machines which would make great experimental projects. You might be able to scale them up to generate significant power from a water wheel or windmill. Who knows? The 450 watt machine has interesting possibilities.

Lots of illustrations and details. Lots of information that can be adapted. Great lessons to be learned. Get a copy! 5-1/2 x 8-1/2 softcover 160 pages

No. 22539 $9.95

Coil Winding Machine



by David J. Gingery

Dave will show you how to build a coil winder like those available in electronics catalogs years ago from common, easily-obtained materials. Although it may look complex, it really is not. You'll find that it is easy to build. You don't need to be a mechanical genius, or need expensive tools. This little machine will wind universal and honeycomb coils, and even pi-spaced coils such as used for RF chokes and transformers.

To wind truly high-end professional space-wound coils like those in old IF transformers requires an understanding of coil geometry, the calculation of complex gear ratios, heart-shaped cams and special followers, etc. It's an art and a science. Here, you can expect to tinker with the friction drive until you find useable drive ratios that can give quite acceptable coils. This coil winder bridges the gap between the professional models and the impossible task of winding universal coils by hand.

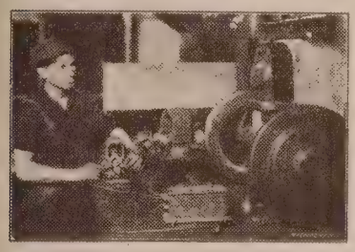
This is a typical Gingery how-to book – loaded with illustrations, dimensions, and step-by-step detailed text. Excellent publication. Not a whole lot on use of the machine, and that's where tinkering will be needed. Order a copy. 8-1/2 x 11 booklet 24 pages

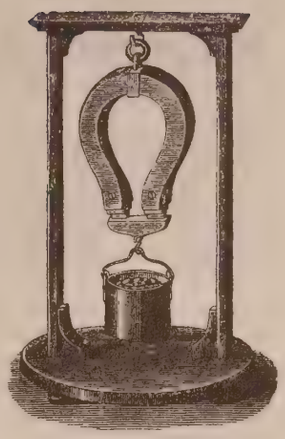
No. 386 $8.95

OLD-TIME SECRETS OF

Making Permanent Magnets

from various sources
reprinted by Lindsay Publications





You CAN make powerful permanent magnets.

The first natural magnets, lodestones, came from Magnesia, and, being rare and exotic, were extremely expensive. Before long experimenters found ways to use a lodestone to create "artificial" magnets of steel.

Several hundred years ago, steel was itself a rare, expensive metal but it was far easier to acquire than a natural magnet. By the early 1800's very strong magnets capable of lifting a thousand pounds were being fabricated by single-touch and double-touch methods together with compounding using soft-iron pole pieces.

Here you get a collection of chapters, articles, bits and pieces from early physics texts and Machinery magazine and a complete reproduction of a 1919 booklet on permanent magnets published by the Esterline Co. In addition you get additional explanation of magnetism terms, other books you may want to acquire, and additional terms you'll need to understand if you are to become a sophisticated magnet experimenter.

Two articles describe how magnetos were mass-produced by the Remy company for the exploding auto industry in 1910. Then a series of articles from Machinery magazine explores the manufacture of permanent magnets from carbon steel, the recharging of magnets, hardening, and experiments with different steels. Then you get chapters on magnets, their fabrication and use, from science texts written by Silliman and another by Frick. You also get select pages from First Steps in Magnetism, along with the 31 page Esterline booklet.

Yes, you can make powerful permanent magnets. No, they're not going to be as efficient as modern samarium or neodymium magnets, or even the classic alnico types. But revealed are precisely the techniques used to create the powerful magnetic magazine used by Michael Faraday to invent his disc generator that so intrigues the perpetual motion and free energy crowd.

If want to build that permanent magnet motor that you're "sure" will work, or that levitating flying saucer you'll use to search for diamonds on Venus, then maybe this will amuse you. On the other hand, if you dream of building a slow-speed permanent magnet alternator or just want to tinker with magnets, you'll definitely find this of value.

Well illustrated. Unusual material. Good stuff. Get a copy! 5-1/2 x 8-1/2 softcover 120 pages

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GINGERY'S

Magneto Magnetizer

by Dave Gingery

Learn how to build a device to recharge old magneto magnets and create new iron magnets for experimental purposes. It's a proven device built from currently available materials, and at low cost.

This machine will not recharge newer alnico, samarium, and similar alloy magnets since these need an enormous magnetic impulse beyond the capabilities of this machine. And beside these newer magnets usually don't go "dead" like "plain" ones.

See how a magneto works, how to test one, how the magnetizer works and will show you in detail how to build one. He'll give you all the tricks on building the base, winding the coils, building and testing the power supply, and, of course, on using the machine. Order a copy today. 8-1/2 x 11 booklet 36 pages

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Solenoids, Electromagnets & Electromagnetic Windings

by Charles R. Underhill
reprinted by Lindsay Publications

Here you'll learn the secrets of creating an electromagnet that generates a field of needed intensity, drawing minimal amperage at available voltage without overheating.

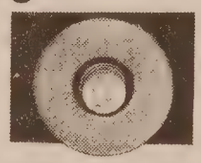
Chapters include: magnetism and permanent magnets, electric circuits, electromagnetic calculations, the solenoid, practical solenoids, ironclad solenoid, plunger electromagnets, electromagnets with external armatures, electromagnetic phenomena, alternating currents, AC electromagnets, quick-acting electromagnets and methods of reducing sparking, materials and bobbins, insulation of coils, magnet wire, insulated wire, windings, forms of windings, heating of windings, and tables and charts. There are also 233 illustrations listed showing everything from a practical multiple-coil winding to rim solenoids telescoped to form disk solenoids.

Build that perpetual motion machine that some people claim is possible. Or how about a flying saucer? Nuts. Just get a copy for your reference library... Excellent! 4-1/2 x 8 paperback 342 pages

No. 20960 $15.95

DESIGN, CONSTRUCTION AND OPERATING PRINCIPLES OF

Electromagnets for Attracting Copper, Aluminum & Other Non-Ferrous Metals



by Leonard R Crow

Wind a coil of wire around a cylinder, and you get an electromagnet called a solenoid that will attract iron and steel. But it certainly won't attract copper and aluminum.

Here, a toroidal coil with a special core powered by AC will attract aluminum. It's kind of the opposite of the classic electric cannon.

This book will explain how this unusual electromagnet works, and why it attracts copper, aluminum and similar metals with low electric resistivity.

The author explains: "Back in 1935 I gave a public lecture demonstration at the physics department of Illinois University in which I used an electrical training aid of my own design and construction to show that an electromagnet could be used to attract non ferromagnetic metals of good electrical conductivity.

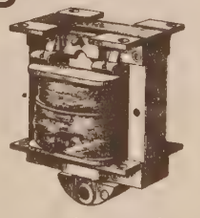
Small book, but loaded with unusual information. Get a copy. 5-1/2 x 8-1/2 booklet 38 pages

No. 3092 $9.95

DESIGN OF

Magnets & Electromagnets

by T B Montgomery
reprinted by Lindsay Publications



Pump current through a copper wire and you get a magnetic field. Wrap that copper wire into a coil, and the magnetic field intensity increases dramatically. You've created an electromagnet.

Chapters include: electromagnetism, types of magnets used, forces developed from magnetism, magnet design procedure, and permanent magnets. You get a formula for finding the pull of a magnet and a complete design section with curves, formulas, and examples for creating clapper, solenoids, e-types, AC and DC electromagnets. You also get useful info characteristics of the different materials used in (1948) permanent magnets.Great easy-to-read-and-understand info. Order one! 5-1/2 x 8-1/2 softcover 96 pages

No. 21818 $9.95

Telephones & Microphones

HOW TO MAKE THEM AND USE THEM

edited by Percival Marshall
reprinted by Lindsay Publications

These days people rave about DVD players, surround sound, and all the high-tech gear that comes out of Asia and have no clue as to how it works. But a hundred years ago in England, experimenters wanted in the worst way to have a telephone. It was a magical device. And about the only way they could have one, was to build one. Fortunately that was something they could certainly do.

Here you get details on building simple telephones. And that in itself is an interesting little experiment in electricity, metal working, and woodworking.

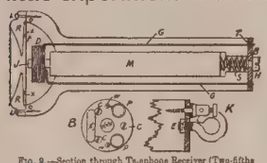
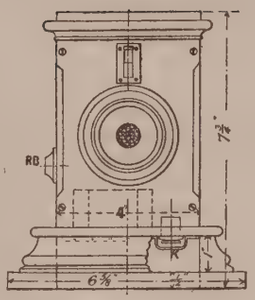


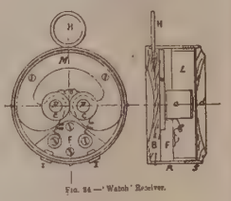
FIG. 9.—Section through Telephone Receiver (Two-fifths Full Size).

But the components of a telephone are essential to early radio as well. The receiving end is a small electromagnetic speaker. Early experimenters strapped two of them to their ears with an flexible band and called them head-telephones, or later, just headphones.



And the early amateur radio operators wanted to transmit their voice in addition to morse code. So what did they use for a microphone? Of course. The carbon microphone salvaged from an old telephone. If you look at photos of amateur stations from the 1920's you'll often see a candle-stick phone (you know, the kind Eliot Ness might have used...). And they used it to transmit AM. The old-timers today still talk about getting out on 75 meter "phone".

So what you get here are the details of building carbon mikes, and magnetic earphones. You get details on wiring them up into working telephone system with batteries, bells, ringing key, induction coil and more.



If you're looking for a science project or want to build your own radio equipment, or even build a replica of an early telephone, you oughta have a copy of this. It's an interesting little book worth having in your electricity reference library. The price is right. Get one!

5-1/2 x 8-1/2 softcover 80 pages
No. 23047 $7.95

The Boy Electrician

by Alfred P. Morgan
reprinted by Lindsay Publications

From 1940 comes this incredible electricity book for boys.

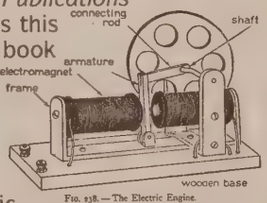
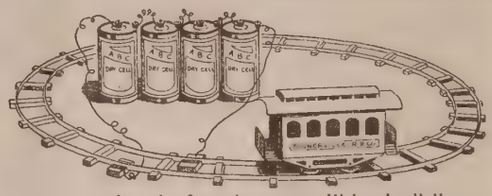


FIG. 238.—The Electric Engine.

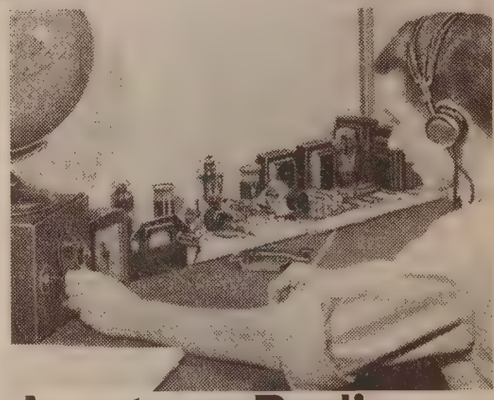
Here, you get chapters entitled magnets and magnetism; static electricity; static electric machines; voltaic cells and batteries; electromagnetism and magnetic inductions; electrical units; wires and accessories; electrical measuring instruments; bells, burglar alarms and annunciators; telegraphy; microphones and telephones; inductions coils; transformers; wireless telegraphy; radio receiving sets; an experimental "wireless" telephone; electric motors; dynamos; an electric railway; miniature lighting; miscellaneous electrical apparatus.



You might start with a cork and needle compass, but before long you'll be building a Wimshurst machine, powerful batteries from scratch, galvanometers, voltmeters, ammeters, telegraph keys and sounders, a telephone, a high voltage induction coil, a step-down transformer, wireless telegraphy with a crystal set receiver, vacuum tube receivers including a regenerative, motors and generators, an electric train, a device to convert heat directly into electricity and even a Tesla coil!

The whole book is heavily illustrated and a joy to read. Remember. This is written for boys. You're not going to get detailed design theory. Morgan keeps the discussion light and fun. But these are great projects. Get a copy.

5-1/2 x 8-1/2 softcover 403 pages
No. 21648 $19.95

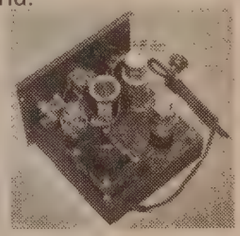


Amateur Radio

A BEGINNERS GUIDE

by J Douglas Fortune
reprinted by Lindsay Publications

Yes! You can be a hot-shot 1940 radio amateur! Learn how to build a regenerative receiver and a crystal controlled breadboard cw transmitter that will allow you to talk to people all over the world.



Chapters include: introduction to amateur radio, learning the code, receiver theory and construction, crystal oscillator transmitter, two-stage transmitter, three-stage transmitter, construction of modulator for three-stage transmitter, and reference.

You'll learn how to build a push-pull 6L6 audio amplifier that can be used as a modulator to turn a morse code station into an 50 watt AM radio station for voice communication. And of course, all of these plans "require" Thordarson transformers, since Thordarson published the book originally. The truth is you can use a variety of other makes and types.

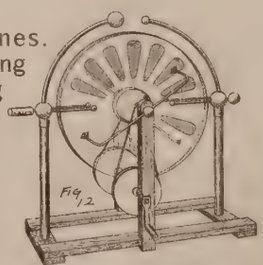
Great for hams who want to relive the old days, or just remember them. These sets still work and can be used on the air. And YOU can build them! Get started! 5 1/2 x 8 1/2 softcover 155 pages
No. 22423 $9.95

Harper's Electricity Book for Boys

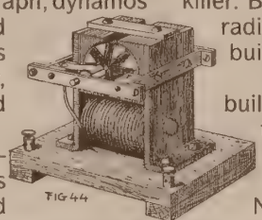
by Joseph H Adams
reprinted by Lindsay Publications

Oooh! Another beautifully illustrated book of simple electrical projects for boys – very much like the Boy Electrician.

You'll discover chapters on cells and batteries, push-buttons and switches, magnets and induction-coils, annunciators and bells, current-detectors and galvanometers, resistance, the telephone, telegraph, dynamos and motors, galvanism and electroplating, miscellaneous apparatus, frictional electricity, formulas, electric light, heat and power, and more.



Build everything from telephones and induction coils to electroplating tanks and Wimshurst machines. You'll find interesting plans for building small dynamos, telegraph keys and sounders, batteries, galvanometers (electric meters), resistance banks, and even an Edison roach killer. Being from 1907, there's very little on radio. But! You will find details on how to build a coherer detector. And lots more.



Fun book to read – even if you never build a thing. But you should build something. After all it's fun. Get a copy of this, and start. Order a copy today.

5x7 softcover 407 pages
No. 22067 $19.95

Instruments of Amplification

by Pete Friedrichs

If you have Pete's Voice of the Crystal, then you must have this! There is only so much you can do with a crystal set, and then you must move on. And this is where you move on to.

The problem with crystal sets is that all the power that gets into the headphones comes off the antenna. There are no batteries or power supplies. But the antenna can extract only so much power, and there is very little you can do to make the sound in the headphones any louder or any clearer. UNLESS! You add amplification, usually with a transistor or vacuum tube. Once you do that, you open up a whole new world of experimentation, and you'll never want to go back to crystal sets.

Here Pete will show you how he made a microphonic relay amplifier which is really an earphone feeding a carbon microphone to achieve an increase in signal level. On the surface the device sounds ridiculous, until you realize that before vacuum tubes this is exactly how telephone companies amplified signals so they could be carried long distances. It really does work.

Then he'll show you how he built a balance-beam amplifier which is sort of a more advanced model of the microphonic relay. It's an ingenious device occasionally mentioned in ancient radio texts. And you can build one that actually amplifies audio signals.

To get the most out of these devices you need a matching transformer. It's very much like the transmission in your automobile changing the form of the electrical energy so that both the crystal set and the amplifier that follows can do their best work.

Then it's on to vacuumtubes. That right. Home-made tubes. You'll get details on Pete's experiments with spice jar glow tubes, a canning jar diode, a bell jar vacuum triode, a tennis ball triode made from a glass votive jar, a hamster bottle triode, and more. According to the data presented in his book, I calculate that Pete's tennis ball triode has a transconductance of about 400, quite low compared to modern tubes, a plate resistance of about 18000 ohms, which gives a theoretical voltage gain of about 7. And that's not bad when you consider the first commercial tubes on the market had voltage gains in the realm of 8 to 10.

Oh so you want to build a transistor? Pete will show you his experiments with a copper oxide device which didn't work so well. But the point contact device he built using a chunk of germanium stripped from a surplus WWII diode worked surprisingly well. And you can do the same.

You get basic theory of triodes, semiconductors, details on Pete's surplus vacuum pump, details on solid state experiments by others, and so much more. This is one of the most unique electronics experimentation books to come along in decades. Not only can you duplicate Pete's experiments, but you can use this as a jumping off point into bigger and better projects.

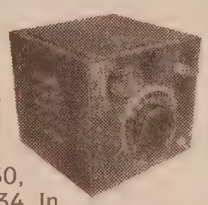
Most people buy a radio and plug it into the wall. A few of us are energetic enough and curious enough to build radios from components. And then there's the occasional mad scientist who actually builds his own components. And that's special.

If you're at all interested in electronics, then I think you must have a copy. This is tinkering, experimentation, and inventing at its best. You get a big book, well written, and well illustrated. We've got a copy sitting here waiting for you. Just tell when to send it! 5-1/2 x 8-1/2 softcover 297 pages

No. 3112 $19.95

SECRETS OF

Homebuilt Regenerative Receivers



by C. F. "Rock" Rockey

If you haven't built a regenerative receiver, it's something you need to do. You can hear foreign broadcasts, ships at sea, spy stations, radio amateurs, and much more. "Rock" will teach you the secrets of getting the most from such simple sets.

"Rock" started building radios as a kid about 1930, and has been an amateur radio operator since 1934. In the 1950's he wrote many radio construction articles for QST, Radio-News, Popular Electronics and Science and Mechanics Magazine. Now in retirement, he has compiled years of construction hints and tips. In effect, you can now learn what has become a lost art.

What you get here is how-to, radio history, philosophy, and the reminiscences of an "old-timer." You'll learn about crystal sets, grid-leak Audion detectors, and why the regenerative detector and performs so well. You'll learn about feedback techniques, coil winding techniques, choosing and modifying capacitors, solving fringe howl, choosing headphones, keeping RF out of the AF stages, problems with hand capacity, and on and on and on.

He'll show you some of his favorite regenerative schematics such as the double twin-triode receiver, the pentode-triode receiver, the double regenerative, a field-effect version of the famous Doerle and more. You also get sample circuits and photos from the 1934 Shortwave Manual and very early QST magazines.

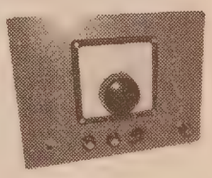
What you don't get is detailed info on building a particular set. That can be found in other books, especially in this catalog. What you get here are all the little things that have been left out of the other books, little things that can mean the difference between mediocrity and eye-popping success, especially if you're just starting out.

This is a great book because it fills in the holes that exist in other radio books. Get a copy! 5 1/2 x 8 1/2 softcover 126 pages

No. 21720 $9.95

HOW TO BUILD YOUR

First Vacuum Tube Regenerative Receiver



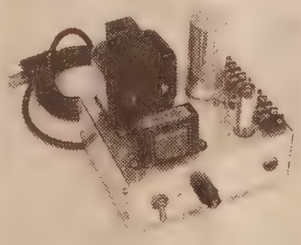
by TJ Lindsay

Build a vacuum tube regenerative receiver. The hardest part is just getting off your butt, building the first one and getting it adjusted.

Here, you'll learn the practical aspects of finding old components and adapting them to your goal of building a little radio. You'll learn how to make it happen. The set described is not the ultimate receiver. Rather it is a real, working receiver that was built from salvaged material – getting results at minimal cost.

You'll learn how to scrounge parts and build a working radio on the cheap today. Parts are available. And they're dirt cheap, but you have to know where to look, and how to adapt.

You also get the best parts of the classic regenerative receiver article by HA Robinson that appeared in the Feb 1933 issue of QST Magazine.



You also get Edwin Armstrong's lengthy 1914 patent for the regenerative circuit with all schematics.

This is about alley pickin', scrounging, adapting, and getting something almost for nuthin... And don't try to tell me that doesn't appeal to you. Get a copy of this. Reasonably priced. Start today! 5-1/2 x 8-1/2 softcover 128 pages

No. 22024 $9.95

SPECIAL PACKAGE DEAL!

Homebuilt Regenerative & First Vacuum Tube Regenerative
Regular price: $19.90 save $1.95

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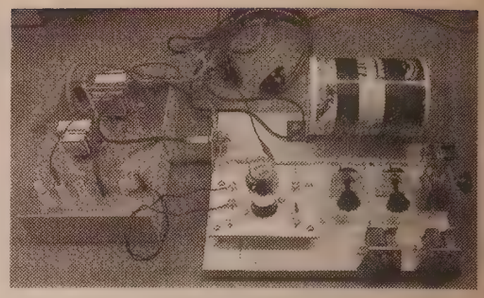
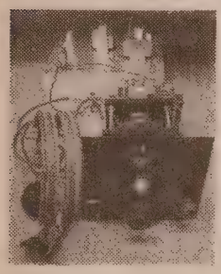
Impoverished Radio Experimenter Vol 1



Experimenter's notes on Vacuum Tube Substitutions, Inexpensive Tube Power Supply, Grid-Leak Detectors, Regenerative Receiver & more!

You must try building a simple radio with tubes! It's easy, and it's cheap. (And don't tell me that doesn't appeal to you...) Do you remember the excitement when you built your first crystal set? This is even better.



You can substitute later, common vacuum tubes for the rare, early types you see in early radio circuits and get a beautifully working radio. Why spend $10 to $30 for a 201A triode? A 50c 6C5 will do the job. Here are tips, hints, suggestions and secrets for substituting common inexpensive tubes in early circuits.

You also get details on a crystal set that was converted to a grid-leak radio. You'll get details on how various tubes worked in the circuit.

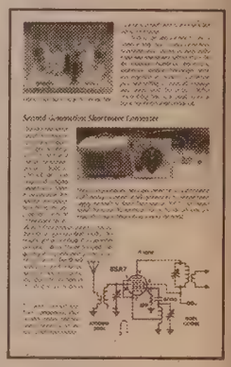
Then you'll be shown how to build a simple and cheap power supply from parts you can buy from current electronic catalogs that will power a two or three tube radio.

You get pages of tube charts and basing diagrams, a reprint on tube theory from 1931, a bibliography of research papers from the late 20's, and you get a brief demonstration of a one-tube regenerative receiver built with a 6SN7 glass tube from the 1950's (had to scrape the mud off it) using a circuit from 1927. It uses a home-made variable capacitor and the home-made power supply described.

Early radio circuits are simple. You don't HAVE to use the exact parts specified. Mix, match, substitute and, above all, do it on the cheap. Old time radio fun for pennies. That's what it's about. Add this to your reference library. 5-1/2 x 8-1/2 booklet 48 pages

No. 22407 $5.95

Impoverished Radio Experimenter Vol 2



You can wind a coil and hook it up to a capacitor, but how will you know if it's right? A grid-dip oscillator, or gdo, is a measurement device that will tell you. And it's very simple – first used in the 1920's.

Here, you learn to build a one-transistor model around the components you can salvage, steal or buy. You'll have a machine that makes coil winding, and tank circuit fabrication predictable rather than merely guess work. You won't need to have the exact coil form specified in that old magazine article. And you can figure out for yourself how many turns to use.

You get instructions on gdo use from the manual supplied with the classic Millen gdo fifty years ago. You get photos of ads and specs so that if you want to buy a used gdo, and they're out there, you'll know what exists. You could even convert an old tube model to solid state.

You'll learn to use the gdo along with simple formulas that will put your tank circuits on the frequencies you want. You can use other formulas along with a known coil or capacitor to measure the value of an unknown coil or capacitor. In other words, for a radio builder, you gotta have a volt-ohmmeter and gdo. Otherwise, you're just wasting valuable time.

You'll learn how to take a pentagrid converter tube and build a one-tube shortwave converter that will put shortwave broadcast stations on a frequency that an ordinary AM radio, or crystal set for that matter, can receive. Listen to the reasonable BBC out of London, or stations in Canada, Germany, Belgium, China, Cuba (talk about BS!) and elsewhere.

Make a top rate slow-motion dial drive for your radio. Its 7.5 to 1 ratio makes tuning stations easy – far better than many expensive antique dial drives.

Make a simple rig for winding professional quality hi-Q space wound coils.

You get many more hints, tips, and ideas for exploration. Stop whining! Build your OWN parts. You can do it.

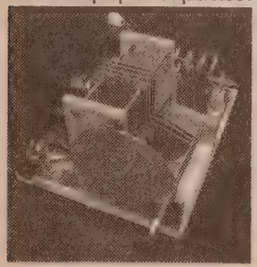
Valuable info. Cheap! Get a copy. 5-1/2 x 8-1/2 booklet 48 pages

No. 22571 $5.95

Impoverished Radio Experimenter Vol 3

You can't build much of anything, mechanical or electrical, unless you have useful measuring tools.

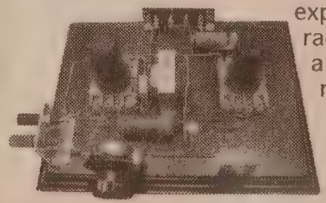
The first part of this new volume shows you how to build a simple impedance bridge that will allow you to measure inductors and capacitors to two significant digits. That means that if you find an old choke in a radio chassis in the alley, this will tell you whether it is 2.5 henries or 17 henries. This bridge will tell you if that old paper capacitor you removed from the underside is still .01 mfd or has changed.



Not only can you test old commercial parts of unknown value, you can also build your own capacitors and inductors (see Voice of the Crystal) and measure the results. Then you can intelligently use the parts to build all kinds of radio gear.

You'll find plans for a simple one IC oscillator that will put out a 150-1500 cycle tone. Use it on the bridge or for other tests. You'll get plans for another very simple one IC amplifier that will make a pair of low-impedance of "Walkman" type headphones, available almost anywhere, "look like" a pair of 2000 ohm phones which are not so easily found.

You'll learn how to make pointers for knobs, and shielded cases from low-cost lumber that will make your home-built gear look like expensive antique radios. You'll see a large home-made variable capacitor built from surplus printed circuit boards and shaft collars, and the simple one-tube shortwave regenerative receiver that was built around it.



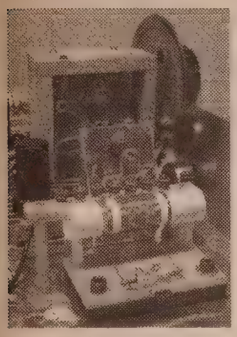
Your impedance bridge will allow you to experiment with audio filters that will dramatically improve the selectivity of a regenerative receiver so that you can copy code in crowded amateur radio bands.

And you'll get some ideas for that larger power supply you'll need for more advance receivers and transmitters.

Same nuts-and-bolts how-to. Heavily illustrated. More ideas than you'll be able to pursue in a month of Sundays. Get a copy! 5-1/2 x 8-1/2 booklet 48 pages

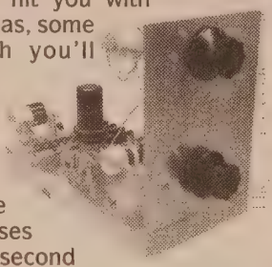
No. 22733 $6.95

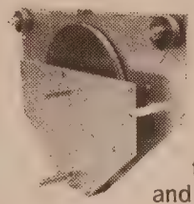
Impoverished Radio Experimenter Vol 4



Some guys think you could never build a regenerative receiver as good as the National's old SW-3, for instance. That's bull. You should be able to build something every bit as good, if not better. And the ideas needed to that are here.

First, we start out with a demonstration receiver that will hit you with many ideas, some of which you'll want to try. This receiver is a four tube regenerative with an RF amplifier (TRF). The original configuration uses two audio tubes with audio filter in the back end. The second version uses a simpler audio filter, and the second

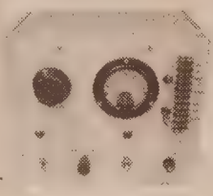




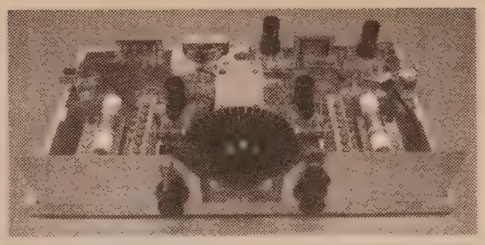
audio tube is replaced by a power tube that will drive a loudspeaker to surprising volume.

Next, the shortwave converter idea of Vol 3 is taken to next step: a modern tube and a crystal controlled oscillator. When this unit was put in front of the TRF receiver, 15 meter (21 mhtz) amateur band signals came flooding in from all over the planet, loud, stable, and distinct.

Then to make tube experimentation easier and larger projects possible, we build a quality power supply capable of providing a wide range of voltages at high current levels.



Finally we explore slide rule dials. These simple, inexpensive fabrications

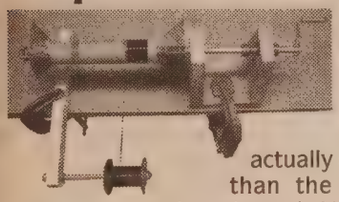


of string and pulleys were used in millions of old broadcast radios, and they worked beautifully. You'll see how to built one from aluminum plate and simple pulleys that can be mounted on a homebuilt receiver. You get a slow motion dial drive with a long bandspread dial that makes your homebuilt receiver fun to use and will impress the socks off your half-wit relation.

More useful ideas for the radio builder. With schematics, drawings, and photos. Jam-packed like the first three volumes. Get a copy! 5-1/2 x 8-1/2 booklet 48 pages

No. 22920 $6.95

Impoverished Radio Experimenter Vol 5

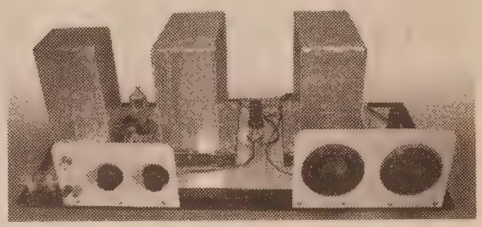


Here you get details on building a three tube superhet that is actually easier to build than the regenerative receiver shown in Vol 4, but easily outperforms it. Three inexpensive octal tubes plugged into plastic relay sockets, driven by homemade IF transformers made from cardboard boxes and aluminum foil, will deliver signals that are more stable and far more easily separated than any regen will. And you can power this radio with the simple power supply shown in Experimenter Vol 1.

This radio is an adaptation of a circuit that appeared in QST in August 1938. Then (and still today, I suspect) hams were terrified of superhets. The authors demonstrated how easy it was to build a superior receiver they could use on the air. This is no more complicated than bolting three simple radios together: a pentagrid converter, an IF amplifier, and a detector/BFO.

You wind the IF transformers on cardboard cores taken from kitchen plastic wrap, put them inside of corrugated cardboard boxes covered with aluminum foil. The whole radio is mounted on a pine board. It's easy to tune, easy to adjust, and you'll discover in an instant why regenerative receivers were relegated to the dumpster.

You also get plans on how to build a simple three transistor oscillator that you use to align the



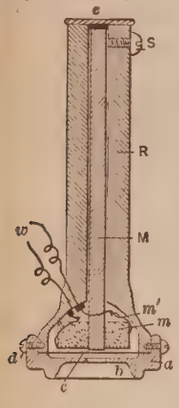
receiver, and can use to align other receivers as well. You'll learn how to build a simple coil winder to make coil winding easier and a simple oscillator that you can use to check the frequency of junk IF transformers found in the alley or at a flea market.

This is so much better than a regenerative, easy to build, and it's dirt cheap. If you want to experience the same excitement that you did when you first heard a crystal set as a kid, then you have to move on and build bigger and better radios. And this is one you MUST try. It's great. You'll see. Get a copy! 5-1/2 x 8-1/2, 48 pages.

No. 22938 $6.95

Electrical Designs

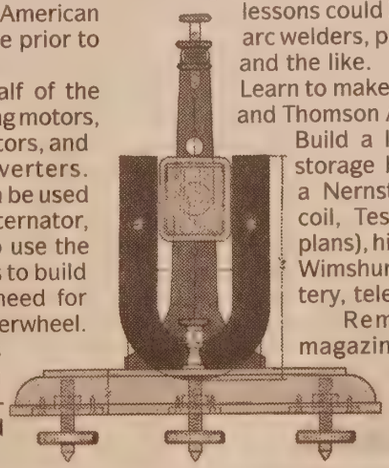
articles from The American Electrician reprinted by Lindsay Publications



You get thirty four chapters, each being a construction article from The American Electrician Magazine prior to 1901.

Fully the first half of the book is about building motors, generators, alternators, and synchronous converters. Since any motor can be used as a generator or alternator, you may be able to use the construction details to build that dynamo you need for your windmill or waterwheel.

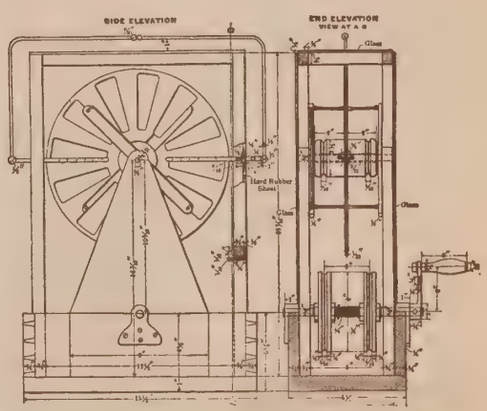
Included are plans for 1, 2, and 4 kilowatt combination AC and DC machines that are designed to used both as motors and generators.



You get plans for winding a transformer, building a reactive coil, and rheostats. These lessons could be applied to building arc welders, primitive light dimmers and the like.

Learn to make a D'Arsonval, mirror, and Thomson Astatic galvanometer. Build a light meter, a simple storage battery, an arc lamp, a Nernst lamp, an induction coil, Tesla coil (very sketchy plans), high voltage condenser, Wimshurst machine, dry battery, telephone and more.

Remember these are magazine articles, so they are jam-packed and all too short. But I have found details, on galvanometers for



instance, that I've found nowhere else. You'll easily learn enough to more than justify the cost of the book.

Good stuff. Explore electricity back when it was more plumbing that theory. Get copy! 5 1/2 x 8 1/2 softcover 262 pages

No. 4228 $14.95

The FM Crystal Set Project

by Phil Anderson

'Taint nuthin to build a crystal set to pull in that AM radio station down the road with all it's ridiculous "talk radio" drivel. Geez... I can almost pick the station up on my gold tooth! But try pulling in the local FM radio station pumping out LedZepplin ('course you may prefer Tiny Tim) with your crystal set. You just can't do it. Until you understand why.

A coil and capacitor select the station you want to receive and pass the signal to the crystal. But a coil and capacitor cannot handle a signal up in the FM band without losing most of it. What you need is a different kind of resonator: the coaxial tank.

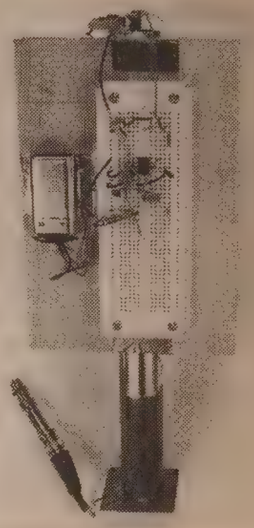
When you decide you're tired of building the same ol' radio, you'll try this...

You can build the tuner you need from a foot long length of 1" copper tubing and a section of 1/4" copper. This baby is efficient and so selective that you can receive FM stations using slope detection.

You get all the construction details, along with suggestions for small solid state amplifiers should you want to add one.

This is really kind of neat. It's an old-time radio design updated to receive modern radio signals. It's easy, but you don't need to tell the inlaws that. Let them think you're a genius.

Great simple project. Unusual. Get a copy! 5-1/2 x 8-1/2 booklet 48 pages
No. 3115 $7.95



Crystal Set Bonanza

by Crystal Set Society

One great collection of simple radio building articles from the Crystal Set Society Newsletter, Volumes 9, 10 & 11!

You get lots of crystal set radios, simple transistor and a few tube sets with details on making your own capacitors, and dials and the like. You get discussions on winding coils, calculations, what wire goes where, etc.

You get the greeting card crystal radio, the tube/transistor hybrid TRF receiver, tips on fixing antique headphones, Gilligan's Radio by Mike Peebles, Improving the Marconi, a variable capacitor from a junk CD, Quest for the Optimum Detector, Experimenter's Shortwave Crystal Set, an RF amplifier, pre-crystal wireless, a two-tube regenerative SW receiver, and much more. And it's all heavily illustrated.

If building a radio is scary for you, you need this book. Building a crystal set is fun, but once done you need to move on. And this collection will get you building a variety of crystal sets and simple radios. This is the kind of background material you need to get the most out of our Impoverished Radio Experimenter series.

A really excellent collection of unusual info at a fair price. Steam engines are fun. But so are these simple radios. After all, they're the steam engines of the electronics industry. It's time you had some of the fun. Order a copy today. 8-1/2 x 11 softcover 226 pages
No. 3111 $19.95

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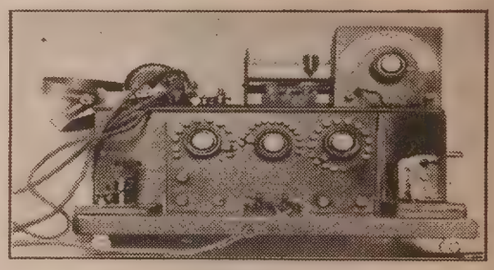


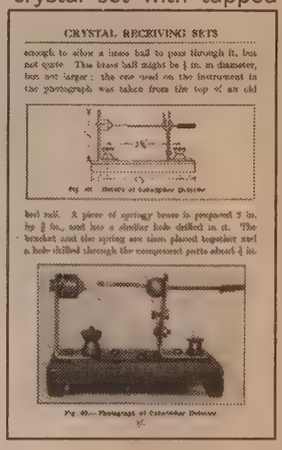
Crystal Receiving Sets

AND HOW TO MAKE THEM

by Bernard E. Jones
reprinted by Lindsay Publications

You get a beautifully illustrated British 1920's how-to guide to building crystal sets and their components.

Chapters include a simple and efficient receiving set, a single slider set, set with semicircular tuner, crystal set with tapped single coil, a loose-coupled set, set with plug-in basket coils, combined crystal and valve (vacuum tube) receiver, some miniature receiving sets, crystal circuits, how crystals work, making a buzzer, receiving CW signals on a crystal set, making a wavemeter from a crystal set, converting low-resistance phones, and the morse code.


CRYSTAL RECEIVING SETS

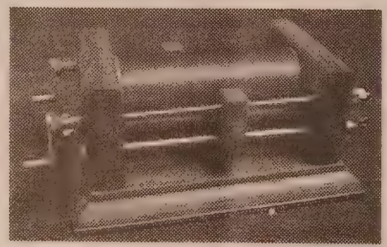
enough to allow a brass ball to pass through it, but not quite. The brass ball might be ¼ in. in diameter, but not larger; the one used on the instrument in the photograph was taken from the top of an old

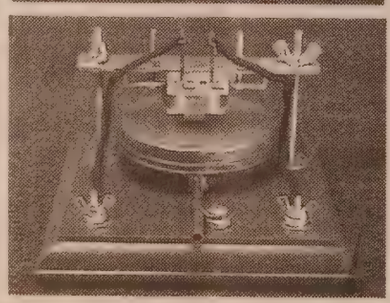
If you haven't built a crystal set, you've missed something. Here's a chance to get started. For the rest of us, this is an idea generator. Get a copy. You'll like it. 5-1/2 x 8-1/2 softcover 124 pages
No. 22385 $10.95

The Voice of the Crystal

by Pete Friedrichs

BUILD a crystal detector... BUILD headphones... BUILD capacitors... and all and everything else you need to create a functioning radio.





Chapters include the gallows headphone, the tin can headphone, the cigarette lighter headphone, the boom detector, the paper tube condenser, practical variable condensers, the roofing metal condenser, the crank coil, thoughts on simple tuners, thoughts on antennas and grounds, and much more.

Pete built, wrote, illustrated, and published this remarkable how-to book. It's wall-to-wall how-to, experiments, photographs, diagrams, and hints and tips. There are more ideas here than you'll have time to explore.

You have to see Pete's beautiful crank coil... his remarkable homebuilt detector... his incredible paper capacitors... his variable condenser...

And yes! You CAN build this stuff. In my opinion, a must-have book for anyone who builds radios of any description, old or new. Get a copy. Top quality. You'll like it. 5-1/2 x 8 -1/2 softcover 184 pages
No. 3099 $14.95

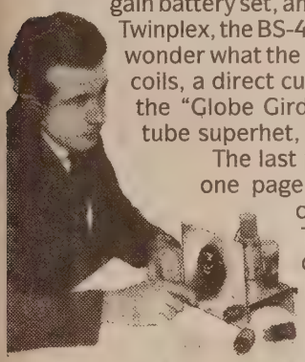
Official 1935 Short Wave Radio Manual

edited by Gernsback & Secor
reprinted by Lindsay Publications Inc

We've offered the 1934 Shortwave Manual for years, but like all great books after you've been through it a few times, you desperately wish there were more to read. And now there is!

I never expected to find a completely different 1935 edition. But I did and it's here for you to dig through.

Like the '34 edition, the first part of this book contains articles, bits and pieces from the pages of Shortwave Craft Magazine that will show you how to build a one tube pocket set, a one-tube tube all electric oscillodyne, the two tube "Champ", the "Duo-Ampli-dyne", the high gain battery set, an advanced 19 Twinplex, the BS-4 Speaker set (I wonder what the BS stands for...), power supply from Ford coils, a direct current six tube receiver, the "Clip-Coil 2", the "Globe Girdler 7", improvements to the Victor two tube superhet, and plenty more.



The last part of the book devotes usually at least one page to the technical details of a commercially available 1935 shortwave receiver. The authors claimed that this was a "full directory of shortwave receivers" for set building and servicing.

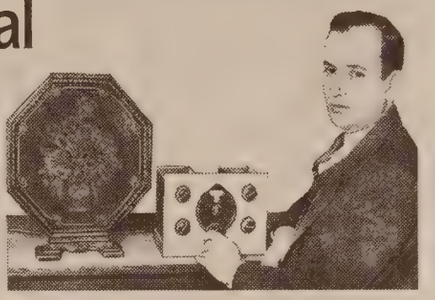
For instance you get details on 16 different Allied Radio Sets, 10 Atwater-Kents, 8 Crosleys, 25 Emersons, as well as many more by Federate Purchaser, General Electric, Howard, Insuline International Radio, Lafayette, Montgomery Ward, RCA, Sears, Sparks Withington, and others.

You get details on three different versions of the Hammarlund Comet Pro, the Hallicrafters Skyrider and SuperSkyrider, The National HRO, SRR, SW-3, and portable transceiver, and McMurdo Silver Masterpiece III. I count more than 239 different shortwave radios in all!

If you build, collect, research, or just remember, this is worth having. Fun reading for radio nuts. That's you, ain't it? Get one! 8-1/2 x 11 softcover 240 pages

No. 22768 $18.95

Official 1934 Short Wave Radio Manual



edited by Gernsback and Secor
new chapter by T. J. Lindsay

The 1934 edition is still available.

You get circuit diagrams, photographs, and design secrets of all shortwave receivers being manufactured in 1934 including some of the most famous: SW-58, the SW-5 "Thrill Box", the deForest KR-1, and many more.

Build Solid-State Sets! Included is a new chapter showing how you can use transistors to replace hard-to-find vacuum tubes. You'll even see the circuit that was lashed together on a table top one night using junk box parts and a hair curler that brought in a ship's captain off Seattle asking for a navigator to help him through shallow water.

Just like the 1935 edition, but different! Top rate. Order a copy. 8 1/2 x 11 softcover 260 pages

No. 4643 $15.95

SPECIAL PACKAGE DEAL!
1934 Shortwave Manual & 1935 Shortwave Manual
Regular price: $34.90 save $3.40

No. 937 $31.50

HOW TO MAKE A

Neutrodyne Receiver

by F F Webb
reprinted by LindsayPublications

Neutrodynes were early radios that were essentially several stages of RF amplification followed by a grid-leak or crystal detector. They worked, but they liked to oscillate unless you kicked them in the butt to prevent it. That swift kick was called neutralization.

Chapters include description of the set, the vacuum tubes, building the neutro-formers, the neutralizing condensers, how to drill the panel, assembling and mounting the parts, wiring the set, neutralizing the set, the antenna, how to locate trouble, and operating the neutrodyne.

Build one! Or buy an old one and renovate it! You'll probably need to know how to neutralize it. The secrets are here. Get one. 5x7 softcover 60 pages

No. 21966 $6.95

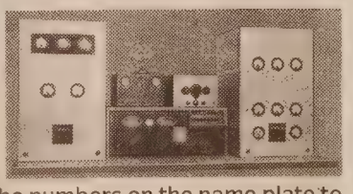
Thordarson Transformer Manual

by Thordarson Electric Mfg Co
reprinted by Lindsay Publications Inc

Inside the covers of this one book you get six different catalogs and manuals from the 1930's: Sound Amplifier Manual, Transmitter Guide, Serviceman's Guide, Radio Servicing Guide, Complete Transformer Catalog, and the "Tru-Fidelity" transformer guide.

You get wall-to-wall info, schematics, parts lists, performance specs, etc on big push-pull audio amplifiers, modulators, microphone preamps, power supplies, and almost any type of electronic gear that used transformers and chokes... obviously... Thordardson was in the iron business: power transformers, filter chokes, audio interstage and output transformers, and even kits.

You'll learn how to repair radios, build a condenser capacity and leakage tester, and measure and test unknown chokes and so much more. The transformer catalog is a gem if you frequent fleamarkets. Many of the items listed can be had for a dollar or two, and even free. You can cross check the numbers on the name plate to find the specs and then build that huge audio amp based on 845 or 800 triodes.



You'll find this dovetails beautifully with Jones's 1936 Radio Handbook and the 1934 Shortwave Handbook. This is ancient technology, but the parts certainly are available, most at low cost. If you don't know where, it's only because you haven't looked.

Great reading! History, nostalgia, secrets, and useful electronic theory. You get it all here with wall-to-wall illustrations. Get a copy. Worth having. 8 1/2 x 11 softcover about 144 pages

No. 22431 $11.95

Twinplex Receiver

by T J Lindsay

Build the amazing one tube Doerle Regenerative Twinplex receiver from the 1930's.

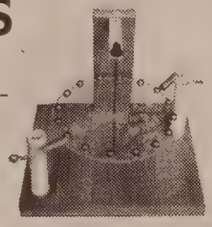
Hook up the batteries and signals come popping in! Foreign broadcasts, ships at sea, amateur cw and ssb signals, spy stations, WWV and more! Details on two updated versions: tube & transistor.

Great receiver! Sharp looking. Something you'll be proud to showoff. Start building! 5 1/2 x 8 1/2 softcover 63 pages

No. 22148 $7.95

SECRETS OF BUILDING ELECTROSTATIC

Lightning Bolt Generators



by Walt Noon

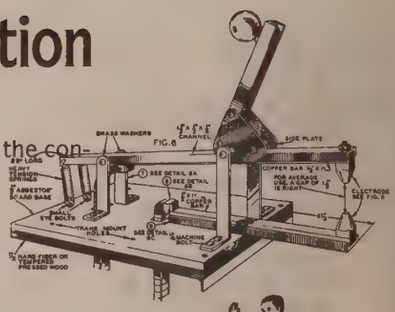
Build low cost generators lightning bolt generators from easily obtained parts.

Learn about the electrophorus, the Rotostatic generator, his bizarre "Cat-o-Static" generator, motor speed controls, external Van de Graaff generators, the classic internal Van de Graaff generator, ideas for an extremely high voltage Van de Graaff, inductive electrostatic generators, the Dirod generator, and more.

Details on voltage measuring equipment, interesting experiments, ion motors, ion blowers, the Franklin electrostatic motor, the Poggendorff Corona Motor, and even capturing free electrical energy from the atmosphere.

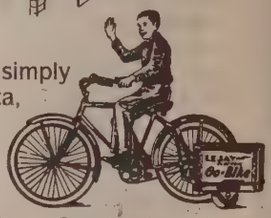
You get an easy-to-read text loaded with photos and drawings. Excellent book! Worth having. Get a copy. 5 1/2 x 8 1/2 softcover 91 pages
No. 20900 $8.95

LeJay Manual 1945 Edition



by Lawrence D. Leach
reprinted by Lindsay Publications

Most of the fifty articles in this 1945 edition deal with the conversion with now-antique auto generators into 110 volt alternators, other voltage generators and motors. A lot of this info was used in areas of the country that hadn't been electrified. You could buy old generators from auto junk yards, build a windmill, repair old auto batteries, and use the electricity to run homebuilt motors, welders and so on.



Most of the information in this booklet is now of limited value simply because you can't get the generators listed. But the rewinding data, hints and tips provided can help you in other rewinding projects for other types of generators.

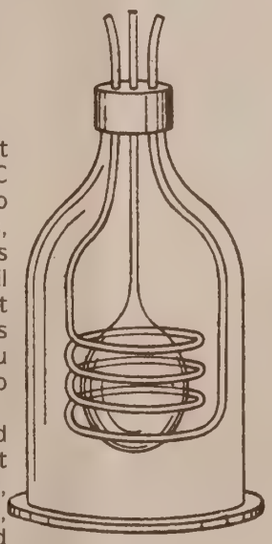
Just one or two projects is worth the price of the book. Each plan is well illustrated.

This is a manual worth having in your reference library. Great ideas. Great value. Fun to read. Useful projects. Worth having. Order a copy! 8 1/2 x 11 booklet 32 pages
No. 20013 $8.95

INCLUDES: Plans for 110 Volt AC Light Plant made from Ford Model "T" Generator • 6 Volt Slow Speed Generator (with plans for all-metal windmill) • 6 Volt & 12 Volt Slow Speed Generators from Dodge "G" or "GA" Northeast Generator • 32 volt slow speed wind light Plant Generator • How to Make a Grinder, Series Motor, Constant Speed Motor, A Universal AC or DC Motor and a Soldering Iron • 75 to 110 Ampere Arc Welder Made from Dodge "G" or "GA" Generator • Pendulum Type Fence Controller made from Ford "T" Coil • Plans for Building a Complete Wind Light Plant Including Tower, Propeller and Generator Charger • 110 Volt AC Light Plant Generator • "B" Eliminator For Your Battery Operated Radio • Directions for Repairing Your Own Batteries • A Water Wheel Made from Old Automobile Wheel • Electric Outboard Motor from Old Ford "T" Generator • Gas Engine or Motor Driven Generator with Drawings • Armature Growler for Testing Auto or Slow Speed Armatures • 110 V. or 220 VAC Portable Transformer for Arc Welding • 110 Volt Spot Welder • Direct Drive 32 Volt Wind Plant • Battery Spot Welder • Electric Scooter • Electric "Go Bike" • Carbon Electrode Holder for Soldering, Brazing and Light Welding • 110 Volt AC 500 Watt Self Excited Generator from Dodge Model "G" or "GA" generator • AC Welding Transformer Using Dodge Generator Coils • and much more!

INVENTIONS, RESEARCHS & WRITINGS OF

Nikola Tesla



by Thomas CommerfordMartin
reprinted byLindsay Publications

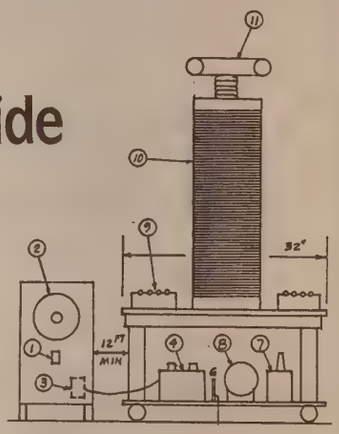
Telsa gave us more than lightning bolt generators. He created the 60 cycle AC electrical system we use today. Tesla also experimented with other frequencies, iron and air core transformers, as well as motors and generators. Tesla's huge coil just didn't appear one day. They were but another step in a series of experiments that had begun years before. Here you get a complete record of his research up to 1893.

It's all here — the AC experiments and inventions that lead Tesla to experiment with ever higher voltages and frequencies, the neon tubes and florescent lights, unusual high frequency alternators and even magnet motors.

If you want to carry on Tesla's unusual research, you must walk in his footsteps. You must do your homework. Here in one volume is the early work that will help you get your mind in sync with his and perhaps suggest what he was thinking at the time, and give you ideas of where to take his experiments.

Every Tesla fan, every high voltage experimenter, and every electrical engineer should have a copy of this classic book. Just as much as Edison, Tesla created the world in which we live today. Now you can study the results of his research, attend his special exhibitions, and devour his lectures, with this single volume. Order a copy today! 5 1/2 x 8 1/2 softcover 496 pages
No. 4902 $18.95

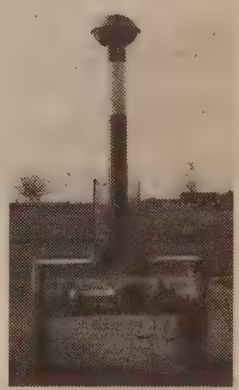
Tesla Coil Construction Guide



by J. H. Couture

Plans for building five different Tesla coils that deliver sparks from one inch to eight feet! Coil theory, radiation and Faraday cage, design procedure, computer printouts, power supply, primary capacitors, spark gaps, primary and tuning coils, secondary coils, experiments and tests, and plans for a 70kv, 250kv, 350kv, 1000kv, and 1500kv systems. About 80 pages plastic spiral binding
No. 3013 $18.00

Tesla Coil Handbook



by Todd A Pringle

Let Pringle, a graduate electrical engineer tell you the truth about Tesla coils.

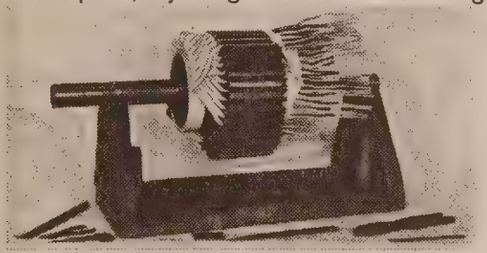
You'll learn about 1/4 wave principle, the Ferranti rise, capacitors, power transformers, spark gaps and all the other components of a coil. You'll learn about design parameters and procedures, tuning and operation, sample design, and more. You get plans, specs, wiring diagrams, and a couple of photos of a coil with a 40" x 4" secondary coil capable of throwing 28" sparks. 8-1/2 x 11 booklet binding 60 pages
No. 3007 $14.95

Armature Winding & Motor Repair

by Daniel H. Braymer
reprinted by Lindsay Publications

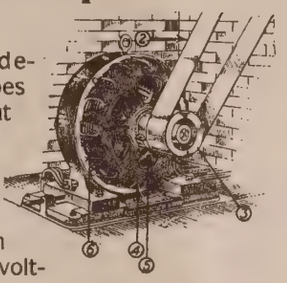
From 1920 comes this motor rewinding book loaded with drawings and photographs that will show you how to rebuild both AC and DC machines.

Chapters include: DC machines, AC machines, shop methods of rewinding DC armatures, making commutator connections, testing DC armature windings, operations before and after winding DC armatures, insulating coils and slots for winding, shop methods for rewinding AC machines, testing induction motor windings for mistakes and faults, adapting DC motors to changed operating conditions, practical ways for reconnecting induction motors, commutator repairs, adjusting brushes and correcting



brush troubles, inspection and repair of motor starters and generators, diagnosis of troubles, methods to solve special troubles, tables and more.

You'll find a chapter that shows you how to build special tools and jigs, an armature sling, a pinion puller, coil winding machine, a coil taping machine, commutator slotter, armature banding machine and more.



The motors described are large types used in factories. But the principles apply to the smaller motors you and I use. You'll learn how to reconnect induction motors for different voltages and phases, how to operate a DC motor as a generator and vice-versa, change the DC motor windings for different voltages, and more.

You'll be taught all the techniques – from removing old windings and cleaning slots, to winding the coils, insulating the end connections, inserting the coils, painting the windings, relining split bearings, and much more. You get data on all types of wave and lap windings, varnishing and insulating materials, and much more.

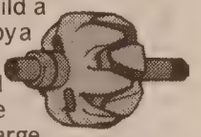
I make you no promises, but this is the logical place to start should you want to rewind a motor to particular voltage, wind a generator or alternator for use with a windmill or waterwheel, rewind a big generator for use as a welder, modify a DC motor for use in an electric car, and so on.

Beautiful book! Over 500 pages of clearly written, wall-to-wall practical how-to with excellent illustrations. It's a gem that should be in your reference library. Get a copy! 5-1/2 x 8-1/2 softcover 540 pages

No. 4384 $19.95

Alternator Secrets

If you know the secrets of modification, you can get large amounts of power from a common auto alternator. You can build a portable powerplant driven by a gasoline engine to run brush-type power tools, lights, and AC-DC appliances at remote locations. You can hot-charge storage batteries, or even do light arc welding. Operation of the regulator is explained so that you can build a custom regulator, if needed, to provide regulated output voltages other than 12.



Learn how you can make almost any ordinary induction motor (like an old washing machine motor) put out 120 volts at 60 cycles without rewinding or internal rewiring. These secrets are worth the price of the booklet alone.

We've jammed a ton of information into 16 pages with small type to keep printing costs down so that we can keep the retail price the same as the old edition. Valuable, rare info! Get a copy. 5-1/2 x 8-1/2 booklet 16 pages

No. 80 $3.00

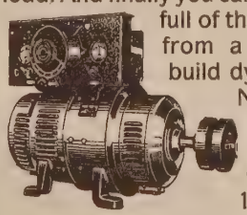
Almost any motor can be used as a generator of electrical power. Induction motors can produce alternating current, but with varying output frequency. It is possible to use a automobile starter as a generator, but they generally don't have adequate cooling for the windings.

You can wind dc generators for windmills and waterwheels if you want. "Electrical Designs" and "LeJay Manual" can show you. You can rewind an old generator into an alternator as shown in "LeJay" and in QST Magazine in the mid-1930's. The "Brakedrum Windmill" shows how to build a slow speed alternator using permanent magnets. In Amateur Radio magazines in the 1960's were a number of plans for inverters that could change 12-24 volt DC into 120 volt AC.

And that's just the beginning. There are lots of ways to generate electricity.

Run Three Phase Motors
On Single Phase Power!

Yes! You can run three-phase motors on single-phase power using any one of three excellent methods in use since the turn of the century. First, lathes, drill presses, and other machine tool motors can be run with the capacitor method. Second, the autoformer method (a technique you should buy rather than build) is useful for motors running under continuous full load. And finally you can run a whole shop full of three-phase motors from a single, easy-to-build dynamic converter! No rewinding is necessary. These methods are good to at least 150 hp and 220 volts! Low starting currents and excellent power factor are possible.



Basic three-phase and induction motor theory is included. This booklet and some experimentation can have you up and running. 5-1/2 x 8-1/2 booklet 15 pages, 18 illustrations — a BARGAIN!

No. 81 only $3.00

Secrets of

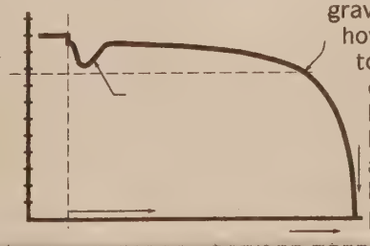
Lead-Acid Batteries

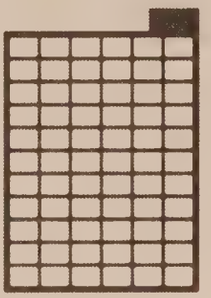
by T J Lindsay

This was originally written and published in 1979 when so many people were still actively exploring alternative energy systems. Geeks and dreamers fantasize about the newest hi-tech batteries and that incredible energy generation system they're going to build so they can disconnect from the grid. People with their feet on the ground realize that the common ol' lead-acid cell represents the cheapest, quickest way to getting the job done. Life is about getting results. And lead-acid is one great success story because it gets results. Here you learn the ins and outs of using these old workhorses.

What you get is a distillation of more complex industrial texts. This has been "translated" for the experimenter with limited technical background so that it is easy to read and understand.

You learn about battery chemistry and why these things work at all. You learn what specific gravity is and how it's used to measure charge. You learn how high high and very low temperatures affect performance, about the different ways to charge batteries, about gassing problems, cell equalization and more.





You learn how to connect batteries in various configurations to get a large energy storage device. You learn about the so-called "secret rejuvenators" sold to suckers, and about a simple treatment that will sometimes restore part of a old battery's performance. You get sample calculations, techniques the pro's use, problems to watch, and more.

Again this was written for people who want to use lead-acid cells for purposes other than starting their cars. And this is the absolutely essential knowledge you must have if you are to make your station battery work properly. But it will also help anyone who regularly deals with auto batteries. It's amazing how common lead-acid batteries are, and how little anyone knows about them. You can be different. Customers have spoken highly about this jam-packed publication over the years. Get a copy.

5-1/2 x 8-1/2 softcover 48 pages

No. 86 $4.95

Whirlpool Spa for Your Deck

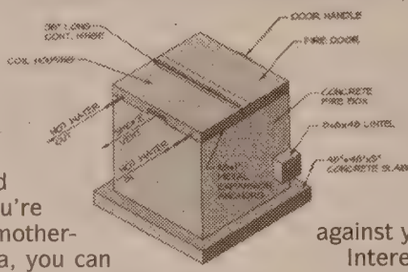
by Kenneth Dixon

Build a low cost 7-1/2 ft square whirlpool spa from commonly available materials for as little as $600. A small, quality booklet loaded with how-to on framing the deck, tub, and installing the plumbing. Check local building codes before building. No heater. 5-1/2 x 8-1/2 booklet 20 pages

No. 6136 $7.95

Wood Fired Water Heater

by Ken Dixon



If you have built or plan to build Ken's whirlpool spa, you can build this heater from common materials. It's much like a barbecue grill, but instead of cooking wild boar, you're heating the water. If your mother-in-law is sitting in the spa, you can raise the water temperature high enough to probably cook her, although that's not its real purpose.

You build the heater from concrete block, concrete, angle iron, threaded rods, and other hardware store materials. You can take a spa freshly filled with cold water to 85° in about six hours, and in the process get rid of all those rotting pallets lying all over your front lawn. (The neighbors might even drop their pending law suite against you!)

Interesting project. Potential fire hazard. As with all these projects, it would be wise to check local building codes before starting. A proven project. 5-1/2 x 8-1/2 booklet 12 pages

No. 6161 $5.95

BUILD A

Mower-Style Line Trimmer

by Ken Dixon

It trims, mows and bushhogs. Replaces both your push mower and your string trimmer. Made with a used 3 1/2 HP Briggs & Stratton engine on a wooden deck. Comparable to commercial $600 models. Dimensioned drawings and step-by-step how-to. Self-published. 5 1/2 x 8 1/2 booklet 18 pages

No. 1455 $7.95

Spiral Stairs for Decks, etc.

by Kenneth Dixon

Complete plans and details for building a low cost outdoor spiral staircase. Based on a standard 4x4 center post. The prototype is 105" high, 60" diameter. Uses common deck materials. Always check building codes. Self-published. 5-1/2 x 8-1/2 booklet 19 pages

No. 6133 $5.95

Country Wisdom Bulletins

each booklet: 5 1/2 x 8 1/2 with 32 pages

BUILD YOUR OWN UNDERGROUND ROOT CELLAR

by Phyllis Hobson

Build a 12x16 concrete block root cellar to save the produce from your garden. Or use it to stash the barrels of wine your gonna brew...

No. 2041 $3.95

BUILD A SMOKEHOUSE

Plans and details for a very simple pit smoker, 3x4 box smoker, one made from a barrel, and even an 8' tall concrete block variety. Great way to preserve meat or fumigate your underwear.

No. 684 $3.95

EASY-TO-BUILD BIRDHOUSES

by Mary Twitchell

Basic plans and know-how to build houses for robins, phoebes, swallows, chickadees, woodpeckers, and more. Build nesting boxes for wood ducks, kestrels, screech owls, screeching inlaws (well... maybe not...), and more. Go steal a pallet and build a bird house.

No. 2044 $3.95

BUILDING STONE WALLS

by Charles McRaven

Contents: getting to know stone, finding a source, tools & techniques, staying safe, cutting and shaping stone, building a drystone wall, and building a mortared wall. Basic, useful know-how.

No. 2046 $3.95

MAKING HOMEMADE WINE

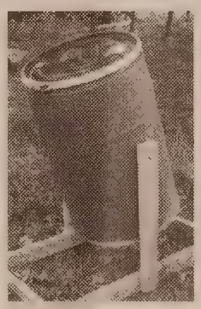
by Robert Cluett

You can make drinkable country wines with simple equipment. It has been done for centuries. Explore equipment and techniques. You get recipes to make wine from apples, pears, peaches, flowers, wheat, raspberries, potatoes, plums, and more. The next time you bore out that casting oversize by mistake and are ready to throw the lathe out the window, just have a stiff snort of homemade wine. It'll change your outlook on life (and save the lathe unnecessary damage...) 5-1/2 x 8-1/2 booklet 32 pages

No. 2060 $3.95

Barrel Style Compost Tumbler

by Ken Dixon



A natural smart way to dispose of organic kitchen waste is to compost it rather than bury it in a landfill. All you do is throw scraps on the existing pile. The problem is that you need to use a shovel or pitch fork to turn the pile frequently to allow air in and keep heat build up down to a safe level.

You can bypass that problem by throwing lawn clippings, sauerkraut (I'm not quite sure about the pickled pigs' feet), and stale bread into this homemade tumbler. You end up with a compost pile that's easier to handle and breaks down into usable compost much faster because of the tumbling action.

The unit is built from a common 24"x36" plastic barrel and common hardware store components. It's a simple project you can build inexpensively. Unfortunately it won't compost unwanted in-laws, your dirty underwear, or your worn out snow tires. But it WILL make great compost. Get started! 5-1/2 x 8-1/2 booklet 12 pages

No. 6162 $5.95

Retractable Deck Awning

by Ken Dixon

"Complete plans and details for building a low cost retractable deck awning."

Another simple, proven project from Ken Dixon. You can build an awning to provide shade for your deck, your sawmill, or maybe for that gigantic wood fired cooking pot you use out back to cook up 20 gallons of 'possum chili at a time. The awning is built from common pvc pipe and a tarp. He'll show you how he did it. Save yourself some time experimenting and certainly some money.

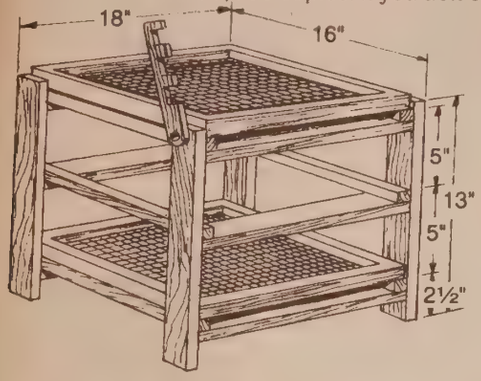
5-1/2 x 8-1/2 booklet 12 pages

No. 6160 $5.95

Keeping the Harvest

Discover the Homegrown Goodness of Putting Up Your Own Fruits, Vegetables & Herbs by Chioffi & Mead

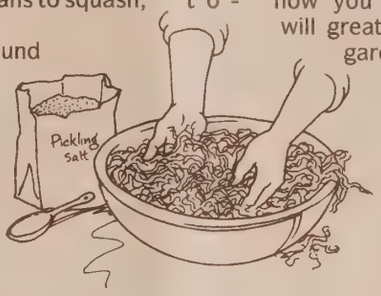
Over the last 25 years this book has been updated several times and has sold almost 200,000 copies. If you don't have a copy in your reference library, then you've missed something.

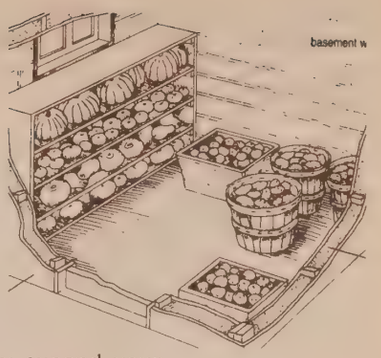


A homemade oven dryer.

You get chapters on freezing, canning, jams and jellies, pickles and relishes, curing with brine, drying, and storage of grains. You get specific instructions for preserving vegetables, fruits and berries – everything from broccoli, brussel sprouts and beans to squash, tomatoes and rhubarb.

Wanna store 500 pound of onions? Build a vegetable drier to preserve okra, cauliflower or pumpkin? Do you crave to stink up the house with a crock of sauerkraut? No? Well, it's about time you did.

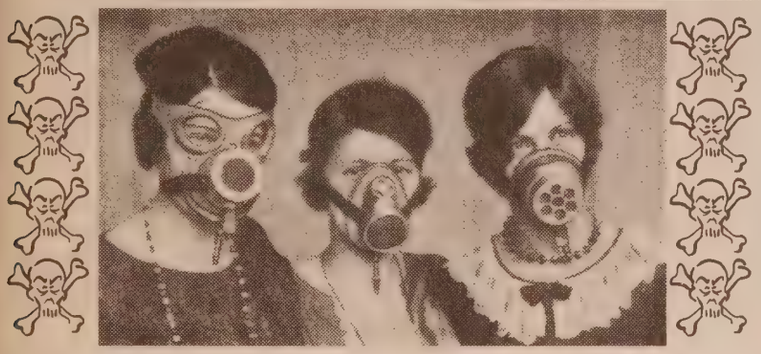




Get off yer butt, get a copy of this, and start planning how you will greatly expand your garden. Now you can preserve the additional produce and enjoy it all year round, and do it on the cheap.

Classic text. Loaded with how-to, recipes, charts, advice, precautions. If you have a garden or plan to put one in, then you need a copy of this. Get one! 8-1/2 x 11 softcover 201 pages

No. 6148 $14.95

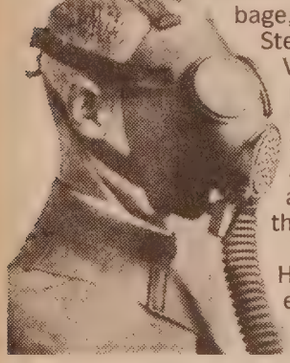


I Just Love to Fart Cook Book

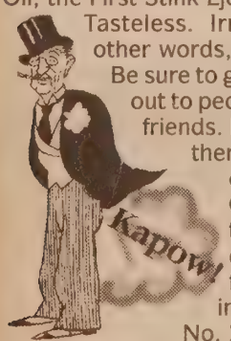
by Pazzin Gazz

Want to be the center of attention? Here's how! Learn to cook!

You get fantastic recipes like Chinese Pickled Cabbage, Swamp Gas Stew a la Stink, Vegetarian Grenades, "Butt Bustin'" Bean Soup, Zucchini Zingers, Rectal Rocket Fuel, and many others. And every recipe was tested and approved by the staff and customers of the "Farts-R-Free" Bar & Grill.



You also get Notable Events in Flatulence History, including the explosion in Georgie Gazzmayne's garage, Herbert Boopster's process for extracting Essence of Fart Oil, the First Stink Ejector, and many more.



Tasteless. Irreverent. Disgusting. In other words, book you'll surely enjoy. Be sure to get multiple copies to pass out to people you no longer want as friends. If the book doesn't offend them, then you can stink them out of your life!

Great gift. 'Specially for that person whose greatest thrill in life comes from releasing toxic butt fumes. Order a bunch today. (Gas mask not included.) 5-1/2 x 8-1/2 softcover 64 pages.

No. 22750 $6.95

Extract Your Head from Your Butt

by Durt E. Phorseps

Now here is a book you have needed for the last decade! Well... that's what I heard... Get a copy of this and get started!

Avoid the expense and embarrassment of having a clear plastic window installed in your navel so that you can see where you are going in life!

People are ecstatic at the results they've been getting:

"After successfully using method number three – the one using the pick-axe and the nylon strap – I can actually tie my shoes again! Thanks so much!" –Senator Webee Yoosliss

Buy a bunch of these. Send them to all those politicians I told you NOT to vote for. Pile a bunch in the front seat of your car. Next Joe Q. Idiot turns left from the right lane, pull him over and hand him a copy! Send one to all those people who annoy you like bankers and attorneys. (If you ARE a banker or attorney, then you may need two copies!)

Truth is, this is just for fun. It's only a cover. The inside pages are blank. That way I don't have to hire someone to write 64 pages of nonsense. And I don't have to pay to have the pages printed. That and other reasons allow me to bring the cost way down and practically give away copies. They're cheap! Buy a bunch and hand 'em out. Have some fun with them!

When your victim points out that the pages are blank, you merely point out this paragraph at the bottom of the backcover:

"The pages of this book will appear blank to a small number of people whose cranium is especially deeply embedded in their colorectal canal. Their condition is so serious that the proven techniques detailed in this manual will probably be of little value. Should you be one of these unfortunate few, relief may only be possible with the use of powerful winches and/or explosives. Seek assistance from an excavating company."

Another looney, totally useless "book" from Lindsay Publications. Be politically incorrect. Buy a quantity and send them out. (Or sell them to suckers for a lot more than you paid...) 5-1/2 x 8-1/2 softcover 64 blank pages.

No. 4010 $1.50

FOUR COPIES - SAVE $1.00 – Counts as one book for shipping
No. 951 $5.00

TEN COPIES - SAVE $5.00 – Counts as two books for shipping
No. 952 $10.00

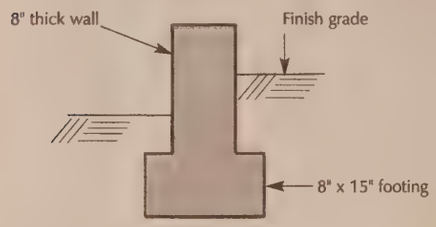
Basic Concrete Engineering for Builders

by Max Schwartz

The backcover copy tells the story very well:

"Every construction contractor who forms and pours concrete needs to understand the working properties of this, the most common and most useful building material. Fortunately, you don't need an engineering degree to grasp basic concrete engineering principles. This manual will help qualify you as an experienced concrete professional, ready to handle reinforced structural concrete work on nearly any construction project- foundations, slabs, columns, walls, girders, and more.

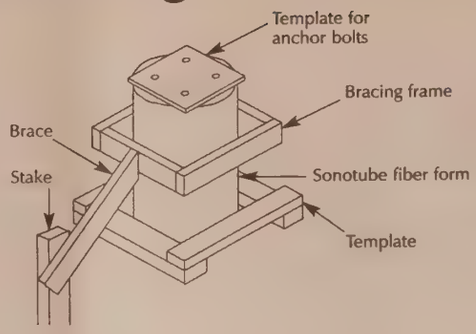
"This manual explains basic concrete design principles in terms readily understood by anyone who has poured and finished site-cast structural concrete.... It's intended to help you understand job requirements from an engineer's perspective... Here you'll find step-by-step explanations showing how structural engineers design concrete for buildings - the calculations, the tables, the checklists, the rules of thumb, the



Two story

examples, the working knowledge professionals need and use on every concrete job....

"Every concrete specialist will be more effective with a working knowledge of the information in this manual: • Concrete: aggregates, admixtures, reinforcing, embedded



items • Mixing & placing: field mixing, transit mix, cellular lightweight, pumping, curing, testing • Surveying: plot plans, transits, levels, foundation layout • Formwork form materials and design for walls, columns, slabs; forming problems • Slabs: forming and sizing, on grade, one- and two-way, elevated, concrete joints • Columns: calculating loads, carrying capacities, designing, reinforcing • Walls: precast, retaining, basement, crib, reinforcing • Beams & girders: pre- and post-tensioned, designing, drawings and specifications."

You also get software on a CD-ROM (Windows only) for designing basic concrete elements such as beams and columns. What you get is a book more complex and detailed than a beginner's manual, but simpler than a complex engineering text. If you plan to pour concrete it wouldn't hurt to know what contractor's know. And if you're a contractor you had better have a firm grip on the knowledge presented here, or your reputation could be on the line.

Good book. Expensive, but it delivers data not usually seen. Consider it carefully.

8-1/2 x 11 softcover 252 pages and CD-ROM

No. 6158 $39.50

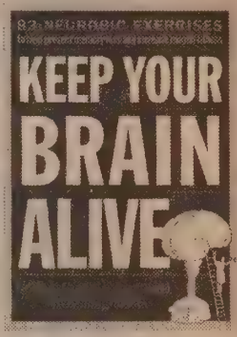
(NOT RETURNABLE IF CD-ROM ENVELOPE HAS BEEN OPENED!)

Keep Your Brain Alive

by Katz & Rubin

I have one slight problem with this book. It assumes the reader already has a living brain. When I see what goes on in this society, I'm convinced this book would useless for most people. They're brain dead. You can't get a dead horse up to run.

But I'm going to assume that if you're eccentric enough to be reading this catalog, you must have at least a few functioning neurons. So you had better start thinking about saving them!



From the backcover:

"Over 40? getting forgetful? Trouble learning new things?

Introducing Neurobics, a unique brain exercise program based on the latest neuroscience research. These deceptively simple exercises help stimulate the production of nutrients that grow brain cells to keep the brain younger and stronger. Neurobics uses the five senses in unexpected ways and shakes up everyday routines. The exercises are offbeat, fun, and can be done anywhere, anytime. The result: a mind fit to meet any challenge whether it's remembering a name, mastering a new computer program, or staying creative in your work."

In reality this is a small, fun book of exercises that really work. I use some of them already. But I'm warning you: people are gonna think you're weird when you change your breakfast to a submarine and a bottle of beer! Or you park your cart in the middle of the grocery store and run randomly through the store grabbing food off the shelves and throwing it 40 feet into the cart. In other words, this is about breaking you out of brain killing ruts.

Neat little book. If you have a brain, get a copy. (If you don't order a copy, I'll know what the problem is...) 5 1/2 x 7 softcover 148 pages

No. 6126 $8.95

The Logic of Failure

by Dietrick Dorner

This book explores the mistakes that people make. Their big egos tell them they're absolutely right, but their plans end in disaster. And, of course, they blame everyone but themselves for the disaster. Sounds a lot like politicians doesn't it?

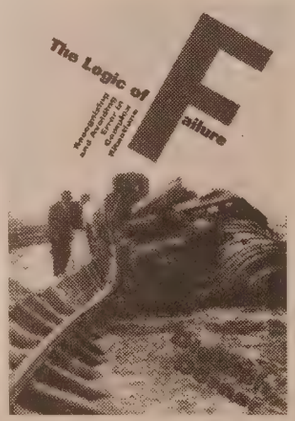
Stupidity explored using computer simulators...

Dorner uses lessons learned using computer simulation games (similar to SimCity) to show us how we all make mistakes.

"Dorner identifies the roots of catastrophe, the small, perfectly sensible steps that set the stage for disaster. In incisive analysis of real-life situations and often hilarious computer simulations he helps all those involved in any kind of strategic planning recognize and avoid such logical yet devastating errors."

A reviewer in Newsweek commented:

"Quick, somebody give Bill Clinton copies of the Logic of Failure. Hand them to CEOs of the Business Week 1000... Everybody knows that people in authority make dumb mistakes. Dorner explains why they do so... Readers will recognize themselves or colleagues."



And there are other rave reviews. I hate to admit it, but you and I are in there. This is a book about how stupid we are, and how we can be less so.

If you're part of the don't-wanna-know-nuthin-just-wanna-do-it crowd, don't order it. It's for people like to learn from their mistakes. Excellent. I think you'll like it. 6x9 softcover 222 pages

No. 6102 $19.00

Sundials

THEIR CONSTRUCTION AND USE

by Newton and Margaret Mayall

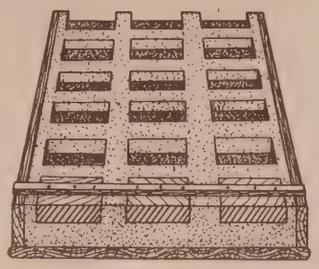
Classic 1938 text on history, theory, design and construction of a variety of unusual sundials. Loaded with instructions and details. Well illustrated. 5-1/2 x 8-1/2 softcover 298 pages

No. 787 $9.95

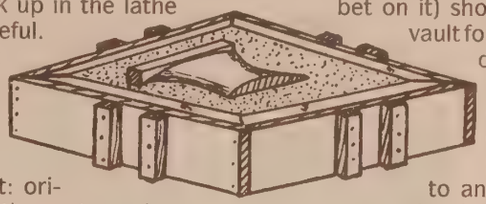
Concrete from Sand Molds

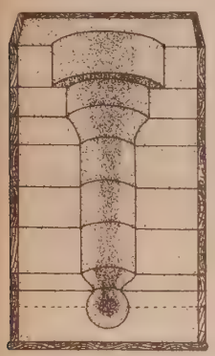
by A A Hougton
reprinted by Lindsay Publications

"A practical treatise explaining a simple system for molding ornamental and plain concrete or 'Cast Stone' with molds of wet sand. This process heretofore held as a trade secrete will successfully mold every class of ornamental concrete work."



If you haven't melted aluminum and poured it into a sand mold, you've missed something. But you don't have to restrict yourself to casting aluminum to have fun. Try concrete! Yah, I know. Concrete is tough to chuck up in the lathe and turn into something useful. But concrete CAN be cast into many useful items.



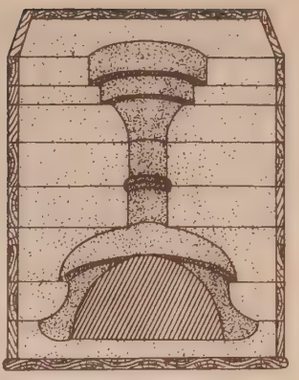


From 1910 you get: origin of the wet sand mold, the principle of the process, mixing and preparing the sand, how to make molds from patterns, making molds from clay and plaster, use of cardboard and metal plates, methods of making cores, combining molds, molding rock effects, making ornamental work, a simple lathe for turning sand molds, making concrete building blocks, molding concrete brick, and facing molds with other material.

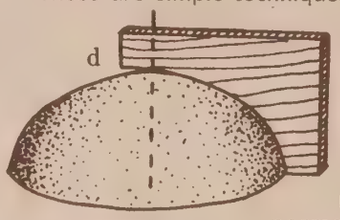
Cast Concrete in Simple Molds!

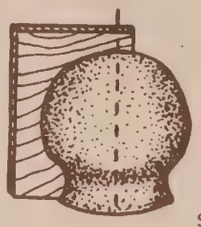
If you cast metal with green sand molds, then much of this is old hat. But it's still a neat little book that might (but don't bet on it) show you how to cast a vault for your mother-in-law's coffin, or maybe an urn for own ashes, or some anatomically correct statue you can plant in the front yard to antagonize the ol' lady next door! And maybe you could actually sell copies to other people with tastes as twisted as your own!

Concrete is a ceramic. And ceramic is an extremely important construction material that should not be overlooked. On the surface it sounds a bit crazy, but perhaps you could support the ways of a homemade lathe or milling machine with a concrete bed. You would not be limited by the size of a crucible or furnace, but instead by how much concrete you can mix up in a 5 gallon pail. And you can buy more Sakrete for less than 5 dollars than you can easily carry! You could bolt a slab of cold-rolled steel to anchors embedded in the concrete.



These are simple techniques worth playing with. If you like the results you're getting, maybe you can experiment with making more detailed permanent molds with more modern materials. A great book of ideas. Get a copy and a couple of pails. Make yourself some overshoes! Get started! 5-1/2 x 8-1/2 softcover 145 pages





No. 23071 $11.95

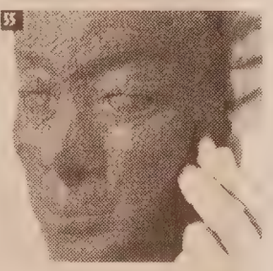
Making Concrete Garden Ornaments

by Sherri Warner Hunter

If you're tired of guard geese, lawn jockeys and cars on blocks, this is the book for you! Decorate your yard with original artwork that will amaze the neighborhood and nauseate "designers"! Learn how to make your own concrete sculptures and lawn borders.

This easy-to-read manual guides you through Concrete Basics, Forming and Construction Techniques, Surface Treatments, and Projects. It also includes a bonus showcase of concrete pieces from contemporary artists to inspire your creativity.

The projects section is the meat of this book. You get more than twenty projects divided into three skill levels: beginner, intermediate and advanced. While some of the beginner projects may seem simple, the skills you develop will aid you in more advanced projects. Learn to make garden critter stepping stones, an ornamental sphere, a birdbath, decorative fountains, a Venetian bench and much more.



For your adventurous spirit, this could be just the beginning. Once you master the casting and carving of concrete, an inexpensive and fairly forgiving medium, you could move on to more challenging hobbies like casting metal in your own backyard. The sky is the limit – once you get started!

Great book! Full of ideas and color photos! Get a copy today and make something wacky or weird for your lawn (or your neighbor's). 8-1/2 x 10 softcover 144 pages

No. 6163 $17.95

Building with Stone

by Charles McRaven

Build walls, buttresses, fireplaces, barbecue pit, stone dam, bridge, spring house, and even a home or barn. Learn about acquiring stone, tools, drystone work, mortared stone, building a wall, intersecting walls, the arch, lintel, gates, windows, doors, root cellar, laying flagstone, and much, much more. Very well illustrated. 8-1/2 x 11 softcover 192 pages

No. 6109 $17.95

BUILD YOUR OWN

Earth Oven

by Kiko Denzer

"A low-cost, wood-fired mud oven; simple sourdough bread; perfect loaves."

Chapters include: build a basic mud oven, firing and baking in your oven, simple sourdough bread, materials and making do, other mixtures and ovens, pyro-dynamics or playing with fire, trouble-shooting, and more. Get one. 7x10 softcover 113 pages

No. 6142 $14.95

Gas-Engines and Producer-Gas Plants

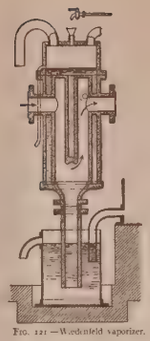


Fig. 121.—Wedmfield vaporizer.

by R E Mathot

Joe Q. Mechanic dreams of building a boiler, steam engine, and dynamo to create his own electricity for his backwoods cabin. Fat chance he'll ever complete it.

Building a steam engine is tough. Finding a dynamo simpler. But I don't want to be around a homemade boiler. It can be a bomb waiting to go off.

There's a simpler way. Instead of burning coal or wood to make steam in an external combustion engine, the smart thing to do is to convert the fuel to gas and send it into a commercial internal combustion engine driving an alternator. The system might be nothing more than an 5 hp Briggs & Stratton engine and a truck alternator charging 12 volt batteries. No boiler to build. No engine to build. No gasoline to buy. Just build a relatively simple cooker and fire it up.

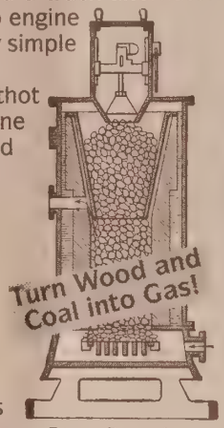


Fig. 97.—Benz producer.

This is what was done in 1905 when Mathot showed people how to use those "high-tech" one lung engines, powering them with gas generated by cooking wood and coal.

Chapters include selection of an engine, installation, foundation and exhaust, water circulation, lubrication, perfect operation, how to start the engine, perturbations in the operation, producer gas engine, producer gas, pressure gas-producers, suction gas-producers, oil and volatile hydrocarbon engines, and selection of an engine.

The beauty of this book is in details provided for many different gas generators. You get drawings of a Simplex generator, a Dowson unit, a Fichet-Heurtey producer with rotating bed-plate, a Gardie unit, a sawdust purifier, a gas holder and washer, a Fange-Chavanon inverted-combustion producer and many, many more. You'll find more about gas production here than in a dozen other books.

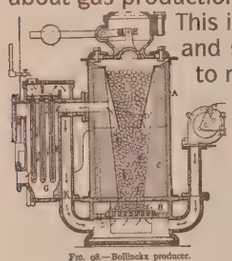


Fig. 98.—Bollinckx producer.

This is not only valuable material to the homesteader and survivalist, but especially to the guy who wants to run his auto on coal and wood. Scaled down versions of these digesters were used all over the world during WWII and the years following due to petroleum shortages. And antique engine fans will find interesting details on early engines, ignitions systems, and more. No promises, but it may be that details here could help you run an engine on methane generated by rotting manure and organic material in a digester.

Great, raw, rare energy information from a simpler time begging to be adapted to today's world. We've been consuming oil faster than we've been finding it for many years now. Shortages are on the way. This might be a way around the problem. Interesting stuff. Get a copy!
5-1/2 x 8-1/2 softcover 314 pages
No. 22458 $14.95

Cooking with the Sun

by Beth & Dan Halacy

You can build a furnace capable of generating 400° with cardboard and aluminum foil. But you can (and probably should) use more sturdy materials like plywood.

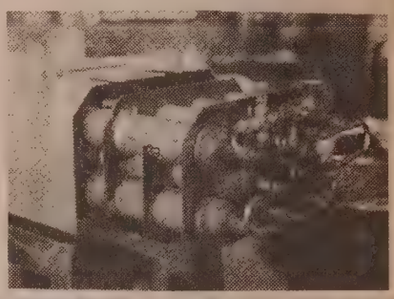
"Cooking with the Sun shows how to harness the sun's energy in preparing food. It presents detailed plans, liberally illustrated with line drawings and photos, for building solar ovens that can cook a 12-pound turkey in three hours, and solar reflector hot plate that perks coffee and cooks steak, bacon and eggs, hot cakes and other stove-top meals. Over 90 delicious recipes."

You can build the oven and the hotplate. You'll also see commercially built cookers. Build one, but forget the turkey. Cook your neighbor's goose. Get one. 7x10 softcover 115 pages
No. 2031 $9.95

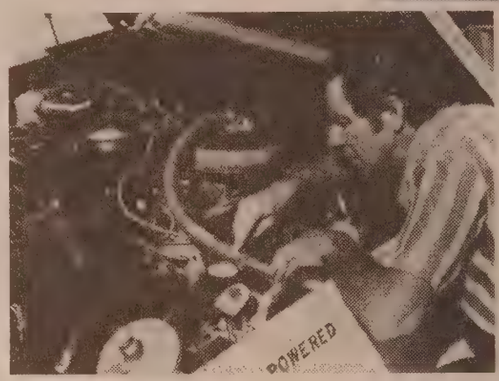
Fuel From Water

by Michael A. Peavey

Here's the best book of its type that I've seen yet. You'll read about hydrogen generators, storage devices, modifications of autos for using hydrogen fuel, the hydrogen homestead and more. You get lists of manufacturers, other books, and sources of additional information.

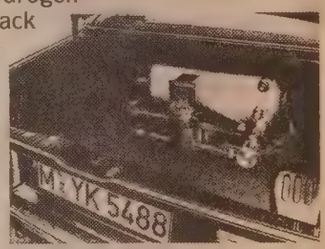


Chapters include electrolysis production of hydrogen, chemical hydrogen production, fuel from trash, storing hydrogen, engine modifications, electricity from hydrogen, stationary applications, safety and the hydrogen economy.



You get both practical how-to and lots of commercial how-to that might be too expensive or difficult for you to use. But even the high end equipment will offer ideas that you might be able to use.

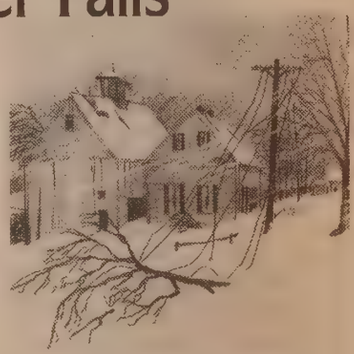
Hydrogen can be useful not only for powering automobiles and other engines, but it can be used to store energy generated by windmills. Why store electricity in lead-acid cells if you just want to heat your house? Burn the hydrogen in a motor-generator unit to convert it back to electricity when needed. These are some ideas to consider.



Excellent book. Great theory. Great ideas. Loads of useful illustrations. We've sold countless copies of this book over the years. Rare information. Get a copy. I think you'll like it.
8 1/2 x 11 softcover 250 pages
No. 2010 $24.95

WHAT TO DO

When the Power Fails



by Mary Twitchell

What to do? Step one: swear like a sailor. Step two: light a candle. Step three: swear like a sailor. That's what I do.

This booklet will give you excellent advice about surviving electricity failures. Topics include: know your plumbing, electrical preparedness, gather food and supplies, cooking alternatives, drinking water safety and storage, keeping warm, sanitation, steps to take during a blackout, what to do when the power is finally restored, and a whole section on generators: types, what size, location, installation, operation and more. And you get a list of sources.

A few of us who are more technologically aware know all too well that a nice solar flare during this solar max could unexpectedly shut down the grid over vast stretches of this continent. If and when it happens, will you be ready? How about when ol' Yellowstone decides to blow and destroy the human race?

Cheap booklet. If you don't order one, your only option is to swear like a sailor. 5 1/2 x 8 1/2 booklet 32 pages
No. 6129 $3.95

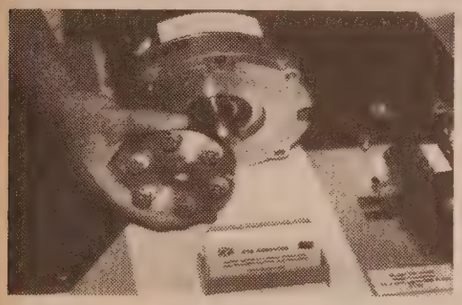
BUILD YOUR OWN

Electric Vehicle

by Bob Brant

Find out why today's electric vehicles are superior to those of only a decade ago. How you can save money when you buy, build or convert. How to determine the best buy, build or conversion tradeoffs: speed versus range, for example. Where to buy all the latest EV components. In-depth coverage of EV chassis, motor controller, battery charger, and electrical systems. How to license, insure, drive and maintain your electric vehicle. And more.

This is not a set of plans or parts lists. This is about the systems you can acquire to convert your own car. You learn what's available, how to make the decisions, and where to acquire the equipment for your machine.



It's loaded with detail: charts, diagrams, photos, equations, names and addresses of suppliers, and more. If you're considering electric propulsion, I think you're nuts not to get this. It will answer most of your immediate questions, and create a thousand more that you'll answer for yourself only by building. (Then you can write your own book.)

Excellent! Great alternate energy info. Get one! 7-1/2 x 9 softcover 310 pages

No. 2033 $19.95

Convert It

by Brown & Prange

"A step-by-step manual for converting an internal combustion vehicle to electric power."

"Convert It takes you by the hand through the entire process of converting an internal combustion car to electricity, from choosing a donor car through removing the internal combustion system, installing the electric system, and all the way to driving, charging, maintenance – and talking with reporters..."

Michael Brown is an experienced mechanic and has been building electric vehicles for years. He'll show you the entire process of converting a car to electric. You can get clean, low-cost performance. In fact electric autos cost about a third of what gas car costs to run.

Why don't Americans have electric cars? Simple. Most auto owners are too lazy to learn and/or spoiled. For now, electric cars will only be accepted by people who are comfortable with and love to tinker with machines – people like us. Good book. Nuts and bolts. Photos. Great info from an experienced builder. Get a copy. 8-1/2 x 11 softcover 128 pages

No. 3069 $24.95

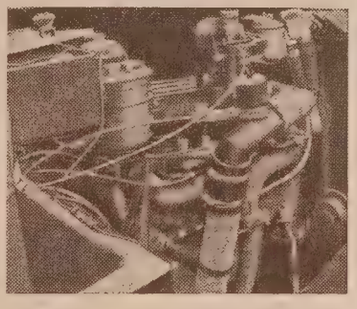
Over the years I've bought *a number of your books, perhaps over $200 worth. All have been enjoyable and in some cases useful. Still, I never considered this to be more than indulging myself in a hobby. Recently, however, it all paid off. A couple of months ago my son's car broke down. The problem was a failed Woodruff key which drives the timing pulley from the crankshaft. Both pulley and crankshaft were pretty well chewed up. The dealer's estimate for repair was in excess of $700. However, by using a couple of ideas from "The Modern Machinist" we were able to fix it for about $3.00. It stayed fixed too. So now I think I'm ahead of the game.*

I've also bought most of Mr Gingery's books and have built his miller. Works good!...

John Davis – San Antonio TX

Producer Gas for Motor Vehicles

by John D and Martin G Cash
reprinted by Lindsay Publications



A few years ago I bought the last few hundred original copies of this 1943 book found in a warehouse in Australia. After several fruitless attempts to find the authors, I just decided to reprint it myself. It's too good not to.

Here you get the secrets of powering an automobile on coal, coke, charcoal, and even wood using successful techniques developed in Australia and Europe. These days gasoline supplies could be greatly reduced at any moment, not by a war with Japan, but by mid-Easterner's not being able to get along with themselves. It could be the early 1970's all over again with gasoline shortages.

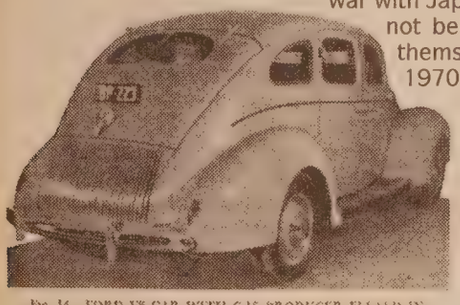


FIG. 14. FORD V8 CAR WITH GAS PRODUCER FITTED IN THE BODY-WORK

Run Your Car on Wood & Coal!

Build an experimental gas generator and bolt it to an old car. When the oil shortage comes, your charcoal powered auto might be the only auto running!

Nuts and bolts how-to. A lot of rare information. Get a book and shelve it, even if you don't build a generator. You'll have it when you want it. Get one NOW. 5-1/2 x 8-1/2 paperback 194 pages

No. 21877 $12.95

– from the preface –

Between. the years 1900-1903 an Englishman named Parker drove first a 2 1/2 h.p. and later a 25 h.p. motor car over a distance of 1000 miles [on producer gas] with results not wholly unsuccessful...

With the onset of the economic depression in Australia in 1929 and the sudden rise in the price of petrol... a new interest in the gas producer for motor vehicles was aroused...

By 1930-1931 a number of plants had been fitted to tractors and trucks and even a few cars. These plants were experimental and usually very cumbersome...

The modern gas producer is made up of three distinct elements...

1. The generator in which the fuel is burnt to produce the gas ultimately used in the engine. This is usually a cylindrical or rectangular metal container...

2. A scrubbing or cleaning element which removes from the gas any of the impurities it may contain....

3. A cooler or radiator...

In addition to the units just mentioned there must be some apparatus in which the producer gas and air mix to form a combustible mixture....

It is hoped that this book may add something to the general knowledge of this subject... Engineers, garage men, students, and experimenters will find the book helpful and thought-provoking...

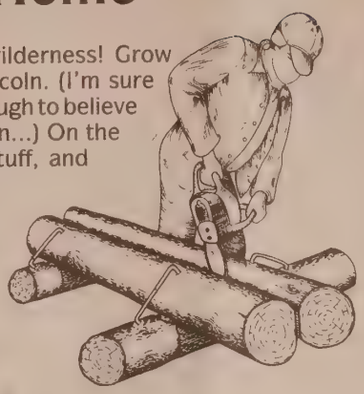
CONTENTS

Heat Power And Energy • Theory Of Producer Gas • Fuels For Gas Producers • The Generator • The Scrubber • The Cooler • Fitting Gas Producers To Motor Vehicles • Means Of Overcoming Power Loss • Driving Of Vehicles On Producer Gas • The Maintenance Of Gas Producers • Future Developments of The Gas Producer • French Producer Gas Plants • English Producer Gas Plants • Australian Producer Gas Plants • Suggestions For Designers • Operating Costs Of Producer Gas • Trends Of Australian Design • Appendixes • Index

BUILD YOUR OWN

Low-Cost Log Home

by Roger Hard



Build a log home! Out in the wilderness! Grow a beard! Tell people you're Abe Lincoln. (I'm sure you'll find plenty of people stupid enough to believe you. If they've heard of Abe Lincoln...) On the other hand, skip the Abe Lincoln stuff, and just enjoy the cabin away from the stink and noise of the city.

You'll learn

- How to shape logs, make corner joints, erect walls, fit joists, add decks and porches, and much more.
- How manufacturers' kit homes differ, illustrated by many photographs and detailed drawings.
- What the manufacturer of a kit log house can do for you – and how to be sure you get what you want.

- The secrets of how to save the most on building your log home – what you can do best yourself and when to get professional help. (and, gawd... do I NEED help...)
- Tools you'll need and ways to simplify hard jobs like raising logs and planning chimneys.

There are a lot of log cabin books on the market. If you've been toying with the idea of building a cabin, this would make a great first book. You get lots of information that will help you decide whether it's for you, and if so, what topics to pursue next. A best seller since 1977. Updated edition. Get one!

8-1/2 x 11 softcover 196 pages
No. 6149 $19.95

Building Small Barns, Sheds & Shelters

by Monte Burch

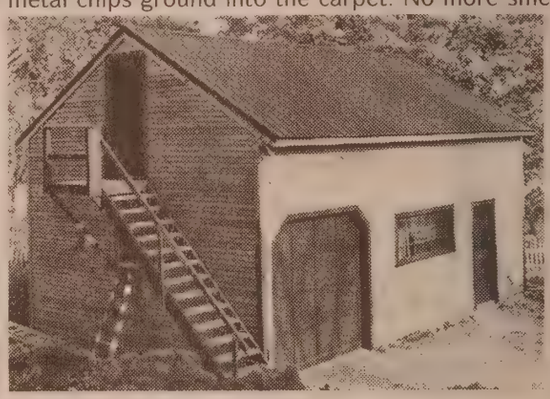
Give your wife a break. You DO remember her, don't you? You probably spend too much time in the basement. Let me give you a hint: she's the woman who lives upstairs. You know. The woman who breaks two or three of your ribs when you pass gas in bed. Well, it's time to give her a break.

Erect a building out back to house your machine shop, your foundry, chemistry or electronics lab, or your keg of beer and bushel basket of pretzels.

Here you get plans and details for building barns, a woodshed, toolshed, carport, barn/studio (sounds good to me), and other small but useful buildings.

Chapters include materials, tools, footings and foundations, framing, siding and roofing, windows & doors, wiring, plumbing, barns, root cellar, storm shelter, carports, poultry housing, rabbit housing, hog housing, smokehouse and more.

Build a barn and move your junk out of the basement. No more metal chips ground into the carpet. No more smell of hot metal and flux throughout the house. No more outrageous profanity when you hit your thumb with a hammer. No more broken ribs. And she won't have to sleep while wearing a gas mask. Cuz you'll spend the night in the woodshed.



Get a copy and get building.

Excellent book. Nicely illustrated. Fairly priced.
8-1/2 x 11 softcover 236 pages
No. 2047 $16.95

Handbook for Lumbermen

by Henry Disston & Sons, Inc

Disston & Sons produced band, circular and crosscut saws used by lumbermen for more than 100 years.

"[This] describes and illustrates these products in great detail and, most importantly, explains how they were used, maintained, and installed. It became the bible of the industry. In this reprint of the 1902 edition are sections on filing and setting of teeth, tensioning, fitting, and aligning, supplemented with illustrations, diagrams and charts that provide a complete coverage of the subject."

You get a great tool catalog loaded with illustrations that not only sought to sell lumbermen Disston saws, but it also showed them how to determine what saw was needed, what the differences between saws were, how to maintain them, and much more. I offer this because the info on hammering and adjusting large circular saws is among the very best I've seen.

If you have or dream about owning a circular sawmill someday, you must have this. Beautiful old book covering beautiful old technology. Get a copy. 6x9 softcover 162 pages
No. 1397 $17.50

Foundations & Concrete Work

THE BEST OF FINE HOMEBUILDING

Details on curing concrete, site layout, stemwall foundations, pouring concrete slabs, avoiding common mistakes, operating a power trowel, rubble-trench foundations, stepped foundations, building a block foundation, cracked foundations, digging a basement the hard way, small job concrete, placing a concrete driveway and more.

Great illustrations and information. Get one. 9x12 softcover 144 pages
No. 6112 $17.95

HOW TO

Convert Wood into Charcoal & Electricity

by Richard H. Buxton

If you put wood into a pipe and heat it, gas, tar and water vapor will be driven off. You can pipe this gas around into the fire that is heating the pipe. When the whole unit cools, you can extract high grade charcoal. And we're talking about charcoal noticeably superior to the grocery store variety you use on your grill.

If you route the generated gas through a series of primitive, low cost, easily made filters, you end up with a fuel that will power a law mower engine. You can use that engine to generate electricity with an alternator to charge batteries. In other words, you can make electricity from wood!

Buxton will show you how it's done. He'll show you the unit he built from common brick, a piece of well casing, old plastic buckets, heater hose, an old Chevy truck radiator, silicone adhesive and so on. His main goal was to melt metal. He had built Stewart Marshall's cupola, but just didn't get the results he expected. He traced the problem down to the coke he was using. After he started using his homemade charcoal instead of coke, he started melting iron like crazy! You can do the same.

The author lives in the Appalachians and has access to a lot of hardwood. You may want or need to consider making charcoal from hardwood scavenged from pallets. And last I heard, scrap pallets "grow" almost everywhere. Making charcoal is essential information for the foundryman.

The homesteader and survivalists will find the idea of turning wood into electricity a valuable skill. You can generate gas from any old wood, not just hardwood, and in fact, I wonder if you could convert brush, leaves, maybe even grain to electricity. It's an idea to try. True, you're only generating small amounts of power, but it's enough to power lights, radios, refrigerators, etc like those used by campers. And if those dipstick terrorists disable the power grid in your part of the country for six weeks at a time, this machine might just save your sweet rear end!

This is about a proven idea that needs to be taken to next level by experimenters. And that means YOU. Get a copy of this heavily illustrated report on how he did it and the results he got. It's unusual and certainly worth having in these uncertain times. Order a copy!

5-1/2 x 8-1/2 softcover 63 pages

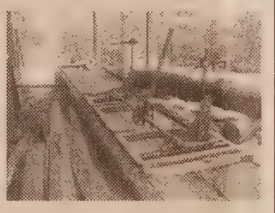
No. 22873 $9.95

Building A Circular Sawmill

by Richard Buxton

Yes, Rick Buxton built a sawmill from scratch – a large, functional circular sawmill that converts logs into boards. And here he shares with you what he learned the hard way.

He'll show you how to pick the site; lay out the wooden frame; put in the foundation; install the rails; build the carriage, headblock, knee, set works and dogs; fabricate a drive assembly for the carriage; modify a power plant; install and adjust the blade; and more.



Turn Logs Into Lumber...

for that wilderness cabin you're gonna build

Buxton's machine has a 24' x 38" bed with 52" diameter sawblade originally driven by an old Volkswagen Beetle engine. This second edition includes details on how he replaced the VW with a Chevy truck engine. The carriage drive is a separate electric drive. This is a proven sawmill that has been used extensively.

This is not a simple project, but it's not impossible either. It requires welding, a lathe, an aluminum foundry, and the knowledge to use these tools. A milling machine would probably be useful, too. You certainly aren't going to build this is a single weekend.

The materials you will need are common angle iron, drill rod, belts, pulleys, key stock, standard bearings and so on. The only unusual item is the sawmill blade, and he'll give you tips on what to look for in buying a used one like he did.

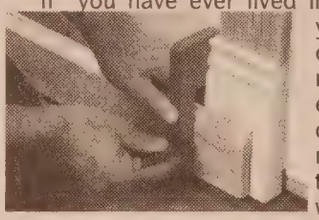
You get many drawings and pictures. But I must warn you, this is neither a step-by-step how-to manual, nor is Buxton a world-class writer. What you get here is story of how one high-energy high school shop teacher creatively adapted what he could find to build a high quality circular sawmill on the cheap as told in his own words. He'll tell what he did right, and what he should have changed. He expects you to have at least basic mechanical skills and to view his mill as the starting point for your own. He doesn't expect you to build a duplicate. In essence, this is a detailed mechanical report for people who are thinking of building their own sawmill. (And the truth is, if you're not knowledgeable enough to take what he's given you here and build a sawmill, I certainly don't want to be around the first time you fire the thing up!)

This is a valuable little book by someone who has done it. Successfully. You get a book loaded with unusual info that can only be learned by doing. And for the guy who wants a sawmill, this is a must-have. If sawing up logs is your dream, get a copy. Worth having. 5 1/2 x 8 1/2 softcover 88 pages 2nd edition

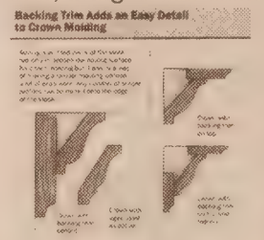
No. 21605 $9.95

Finish Carpentry

articles from Fine Homebuilding



If you have ever lived in an old house you can appreciate the craftsmanship needed for the fine details. Crown molding, cornice trim, intricate wainscoting and baseboards make older houses special. However, living in that same old house you know that repairing and replacing those great details is very difficult. Here is a book written by the editors of Fine Homebuilding magazine where the pros give you the long forgotten secrets of fine finishing details.



The book includes: installing different types of door, window, baseboard and cornice trim, calculating, planning and ordering trim to minimize waste, compensating for out-of-square and out-of-plumb conditions, scribing techniques for uneven surfaces and using a nailgun to speed installation.

When your old house needs repair, or when you want to add character to your cookie-cutter condo, you'll need the ideas here. Lots of color pictures and tips from the pros. Order one today. 8-1/2 x 11, softcover, 156 pages.

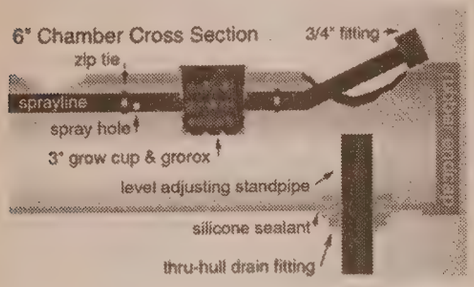
No. 6157 $17.95

How to Hydroponics

by Keith Roberto

People are so ignorant! You bring up the word "chemical" and they almost panic. Lions and tigers and bears. Oh, my! And PCBs, dioxin, and mercury. Oh, my!

But chemicals are not inherently bad. The fact is, the reason we ingest food and drink is to get the chemicals we need to stay alive. And plants extend roots into the soil to extract chemicals they need to mix with chemicals extracted from the air so they can grow.



You can grow plants in your basement or back porch without soil. Instead you can use sand, stones, vermiculite and other substances kept wet with a "soup" laced with exactly the right amount of chemicals to let them grow properly.

In the dead of winter you can grow great tomatoes, vegetables, flowers, and, I suppose, those strange plants your pot-head brother-in-law likes to smoke. But you're on your own on that one.

You'll learn about plant nutrition, nutrient recipes, mediums, indoor lighting, starting with seeds, cloning plants, problems, types of systems, planning the garden, three inexpensive systems you can build, building a hydroponic planter, building an Aerospring™ garden, a pvc pipe system, and even a system for a closet!

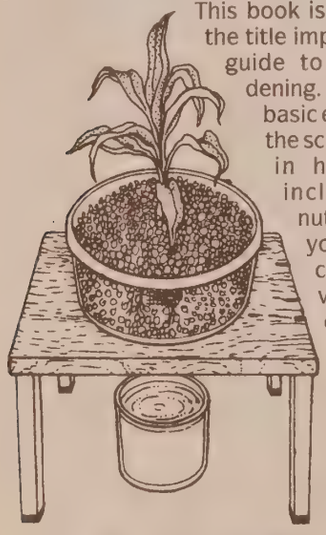
This is a self-published book by someone who has done it. Excellent nuts-and-bolts, detailed how-to with many diagrams and photos. A bit expensive, but it delivers. The only book I've seen that comes close to this went out of print years ago.

Grow herbs and spices! Flowers! Nuts... You just might need this to grow food during that nuclear winter that's coming... Get a copy. 8-1/2 x 11 softcover 70 pages

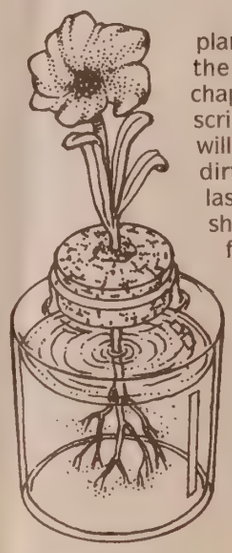
No. 2052 $24.95

Beginning Hydroponics

by Richard E. Nicholls



This book is exactly what the title implies, a simple guide to soiless gardening. It starts with a basic explanation of the science involved in hydroponics, including plant nutrition. Then you get a quick course in the various methods of soiless gardening, water culture, sand and aggregate growing and other methods. A primer on plant care is included in the home hydroponics chapter. Chapter 4 describes what kinds of plant will work best in your new dirt-free garden. The last chapter is a troubleshooters guide to identifying and treating problems, pests, disease and nutrient issues. You also get a great list of resources for equipment and more information. Simple drawings, great information! 6 - 3/4 x 10 softcover 127 pages.



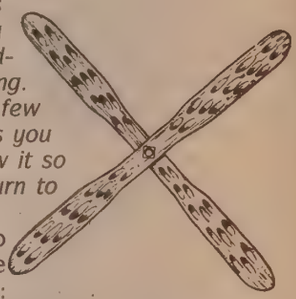
No. 2055 $9.95

BOOMERANGS!

HOW TO MAKE THEM AND THROW THEM

by Bernard S. Simon

"It only takes minutes to make a good guaranteed-to-return boomerang. By following a few more simple steps you will learn to throw it so it will always return to you..."



Learn how to make all of the standard designs: pin-wheel, boomabirds, airplane shapes, other ornamentals, tumblesticks, and others. Fun! Cheap book! How can you afford not to have a copy? 5 1/2 x 8 1/2 paperback 99 pages

No. 41 $3.95

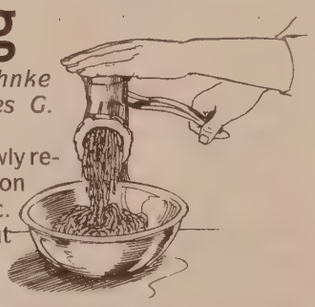
Baking with Sourdough

Learn how to make a sourdough starter and use it to make a variety of delicious breads and biscuits like the gold rush prospectors did. This "Back-to-the-Land" bulletin published by Garden Way provides you with hints, tips, and recipes. 5-1/2 x 8-1/2 booklet 32 pages

No. 2006 $3.95

Home Sausage Making

by Susan Mahnke Peery & Charles G. Reavis



This is the newly revised third edition of an old classic. Make great gut busting sausage! Over 100 recipes – both fresh and cured. It's all here! Make summer sausage, Genoa salami, Kosher salami, bratwurst, frankfurters, bologna, kielbasa, Braunschweiger, chicken sausage, vegetarian sausage and varieties from bison, squirrel, rabbits, and even fish! This is a great how-to manual and cookbook! Order a copy. 7 x 9, softcover, 283 pages

No. 635 $16.95

Homemade Root Beer

AND SODA & POP

by Stephen Cresswell

You can make carbonated drink by adding yeast to the recipe, capping the bottle, letting if ferment a couple of days and then refrigerating. A small amount of sugar is converted into a small amount of alcohol and enough carbon dioxide to heavily carbonate the drink. Years ago, Sears & Roebuck sold cappers for just that purpose.

Here you get equipment details, how-to and recipes for all kinds of drinks including root beer, sarsaparilla, birch beer, lemon-lime soda, cream soda, molasses switchel and many more. You get more info on fermented soda than I've seen in one place before. Great summer project! 7x9 softcover 121 pages

No. 6105 $14.95

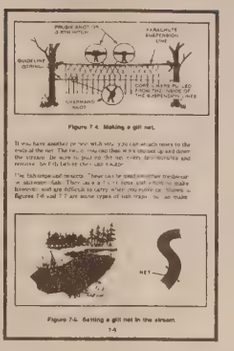
US Army Survival Manual

This is the best outdoor guide I've seen in a while. Written by the US Army for troop training, it is now available to anyone who enjoys being away from the hustle and hassles of civilization.

From the preface.....

"A must for campers, hikers, explorers, pilots and others whose vocation or avocations require familiarity with the wilderness or out-of-doors, this excellent manual describes and clearly illustrates the techniques of survival medicine, tool making, food and water procurement, shelter building, direction finding, signaling, and many others that could mean the difference between life and death in remote areas."

This book offers you detailed survival guides for the toughest climates: desert, tropical, arctic and subarctic, as well as sea survival. Other topics covered include: survival planning, fire building, water crossing and much more.



You get color photo guides to poisonous snakes, edible and poisonous plants. A photo guide to using cloud cover to determine weather is also included.

This is a great book at a ridiculously low price. Loaded with drawings and 115 color illustrations. Order one today. 6 x 9, softcover, 400 pages.

No. 2058 $9.95

Stay Alive in the Woods

by Bradford Angier

"For over twenty years, sportsmen, hunters, and camping families have been carrying this book with them every time they venture into the woods. It is a life-saving tool which details all of nature's resources and shows — in 26 clearly written, illustrated chapters — how to find food, water, warmth, and shelter when lost or stranded.

The book is full of secrets that can help save time, energy — and even lives. For example, it tells: how to spark a fire by using a drop of water as a lens; how to obtain meat and fish by primitive means; and how to protect yourself against natural hazards..."

Quality information for a low price. 4 x 7 mass paperback 285 pages.

No. 682 $9.00

Five Acres and Independence

by M. G. Kains

Tell the boss to hang it, and move to the open country and homestead! It's possible. This reprint of the 1935 original will show you as it did thousands during the Depression how to survive comfortably on five acres. You'll learn about greenhouses, coldframes, soil, manure, fertilizers, compost, tools, weeds, orchards, pruning, grafting, seeds, transplanting, berriers, things to sell every day, grapes, storage, and much more. There's so much info here at such a low price, you can't afford not to have a copy. 397 pages 5 1/2 x 8 1/2 paperback

No. 608 $8.95

Making Your Small Farm Profitable

by Ron Macher

You finally did it! Got off the corporate treadmill and moved to the country...now what? Something that started out as a dream when you where working 60 hours a week in a windowless cubicle now seems a little scary.

This book written by a 30+ year veteran farmer gives you a clear guide to turning your dream into a money making reality.

From the preface: 'There are many good books about individual species of livestock, many useful gardening books, many great books about the reasons for and philosophy of farming, but few books that tie all these aspects together or that help the reader choose where to start.'

Some of the topics include: deciding to farm, principles of good farming, living healthy soil, weatherproofing your farm, goals and farm planning, marketing, selecting your enterprise, machinery, and farm management. There is also a comprehensive resource list at the end of the book.

A must-have for anyone who wants their 'back-to-basics' ideals to become a bill paying reality. Easy to understand with clear charts and graphs. Order now! 6 x 9, softcover, 274 pages.

No. 2056 $19.95

A welcoming farm on a well-traveled road will be popular with locals and tourists alike.

Simple Foods for the Pack

by Axcell, Kath & Cooke

From the backcover:

"This latest edition of the original – and best – natural foods backpacking cookbook features a wealth of new recipes and mouthwatering classics, as well as the most current information on cooking with today's lightweight foods and equipment. This unique cookbook brings together the expertise of culinary professionals and the wilderness knowledge of a former backcountry guide to provide more than 200 recipes for delicious, natural, easy-to-prepare meals for backpacking, hiking and camping."

A must have for your next wilderness vacation! Whether you're camping, hiking, hunting or holed up in your machine shop for days at a time, this cookbook will offer a variety of quick, tasty meal ideas. The recipes include beverages, cereals, breads, pancakes, soups, main dishes, desserts and more. With a little planning and preparation you can eat better on the trail than I eat at home!

A sample recipe :

MACARONI & CHEESE

1/4 pound cheese (cheddar and/or jack), grated
1/4 cup milk powder
1 tablespoon parsley flakes
2 garlic gloves, minced, or 1/4 teaspoon garlic granules, or 1/2 teaspoon garlic powder
8 ounces macaroni

At Home: Package the cheese, milk powder, parsley and garlic in one ziplock plastic bag; and the macaroni in another.

In Camp: Bring 2-3 cups of water to a boil and stir in the macaroni. Boil 10 minutes. Drain and stir in the milk and cheese mixture until the cheese is melted.

A great resource for any backcountry trip or marathon foundry session, get yours now! 4-1/2 x 8, softcover, 288 pages

No. 2061 $14.95

Birdhouse Construction

by Scott Campbell

Build a birdhouse! It's easy. Learn about designing the roof, cleanouts, drainage and ventilation, entrance holes, the interior, the requirements of the birds, how to support a birdhouse, about inspection, pest guards, and more.

When your children or grandchildren ask you how to build a birdhouse, you don't have to admit you don't know how. Whip out this booklet and get underway. Or give it to them as gift. Dirt cheap! Good! 5 1/2 x 8 1/2 booklet 48 pages

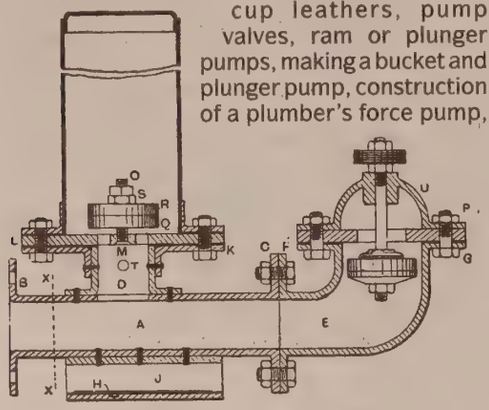
No. 6010 $2.95

Pumps and Hydraulic Rams

by Paul N Hasluck
reprinted by Lindsay Publications

Another hundred-year-old gem from Hasluck's "Work" series!

Chapters include: suction pumps and lift pumps, making simple suction pumps, pump cup leathers, pump valves, ram or plunger pumps, making a bucket and plunger pump, construction of a plumber's force pump,



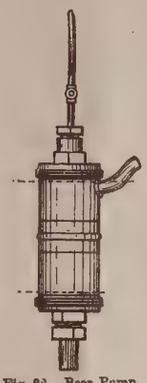
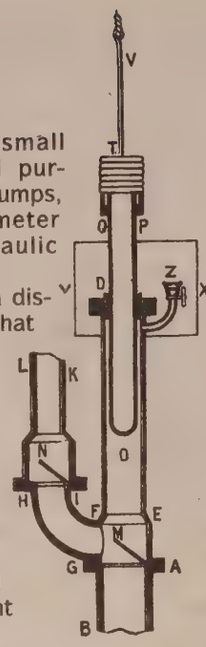
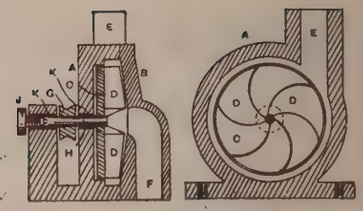


Fig. 22.—Beer Pump.

wooden pumps, small pumps for special purposes, centrifugal pumps, air-lift and pulsometer pumps, and hydraulic rams.

Here you get a dissertation on pumps that enabled the 1907 reader to use pumps intelligently, repair them, and build them. You get details on patterns for castings that you might choose to pour. Or you can use the sheet metal patterns to fabricate a pump. Or you could build a rotary pump as a load for your steam engine. Or you might want to build a ram that uses the





momentum of fast flowing water to actually pump a portion of the water uphill. (That's always popular with the homesteading crowd.)

So build a pump to extract a pint of ale from the casks down in your cellar. Or a pump to siphon gas out of your neighbor's SUV. Or, geez, you could even build a pump to get water out of that well you're gonna dig. (sorry, nothing on stomach pumps...)

Another excellent book. Loaded with illustrations like all Hasluck books. Get a copy! 5-1/2 x 8-1/2 softcover 160 pages

No. 22610 $9.95

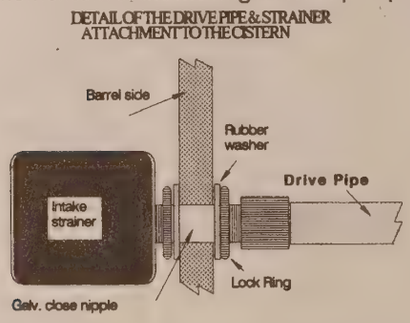
ALL ABOUT

Hydraulic Ram Pumps

by Don Wilson

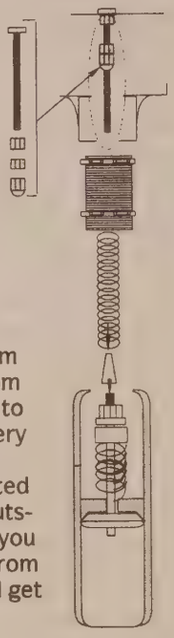
"How and where they work plus complete plans showing how to build, install, and maintain a high-efficiency ram pump. 1 or 2 inch sizes covered."

If you have a fast flowing stream nearby, you can probably use a hydraulic ram to use the momentum of the moving water to pump a small

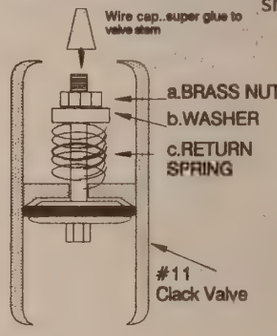


quantity to water up hill to another location. I'm sure some bonehead would look at this as perpetual motion or free energy or something equally bizarre (gee, I'll bet Tesla invented it...). But a ram uses energy extracted from a moving body of water to do useful work using a very simple machine.

You get a well-illustrated booklet that is almost all nuts-and-bolts how-to showing you how to build a useful ram from common pipe fittings, and get it working properly.



A ram can be used to keep a small pound filled year round so that you can grow catfish, crayfish, or even hammerhead sharks. Well... maybe not sharks.

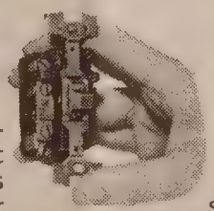


Self-published. Nicely done. Much like the Gingery series of books, only on a topic for homesteaders and/or survivalists. If you need to pump water, get a copy of this. Do it now. 5-1/2 x 8-1/2 booklet 42 pages

No. 2053 $10.95

Wiring Simplified

40th Edition (yes, 40th)
by Richter, Schwan, Hartwell



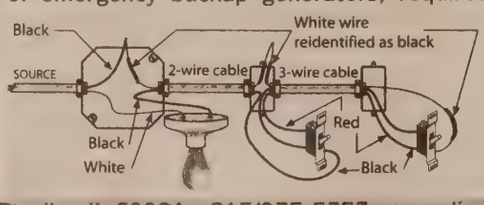
I keep belly-achin' that these days Americans are so dense they can't fix the toilet when it won't stop running. And a toilet is about as simple a machine as you'll ever encounter. The people who read this catalog are smarter than that. (I make every attempt to eliminate idiots from my mailing list.) So that means you and I know how to change a light switch in the wall when it fails. That's easy.

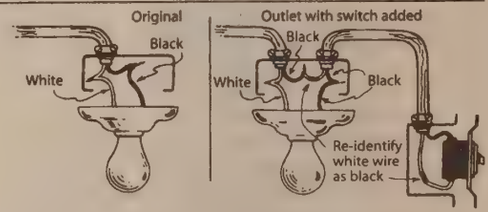
This book goes the next step in explaining how wiring should be done in accordance with the latest NEC – National Electrical Code. And the code has changed a lot since I've done any extensive wiring. So this is a valuable reference.

You'll learn about the boxes, conduits, connectors, breakers, fuses, mounting techniques and all the rest. Everything is brief, to the point, easy to read, well illustrated and practical.

Chapters include standards and codes, planning the installation, measuring electricity, wire, circuit protection, circuit diagrams, grounding, service entrance, outlet and switch boxes, basic wiring procedures, cable, tubular raceways, modernizing old wiring, appliances, finishing your installation, electric motors (even single-phase to three-phase converters), farms, low-voltage wiring and trouble shooting and repairs.

Changes in this latest edition include arc-fault circuit interrupters, safe installation of emergency backup generators, required





workspace around electrical panels, motor disconnects, household computer network wiring and more.

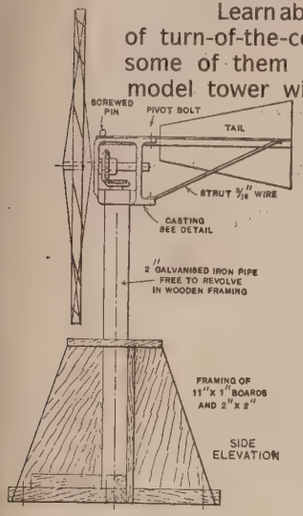
This is a great reference if you plan to do your own wiring. The price is ridiculously low considering the information you get. I already know a great deal of what's presented, but I'm certainly going to put a copy in my reference library.

You can buy beginner's books, and you can buy expensive technical school textbooks. But you won't find a better book for the price than this. Get one. You'll need it – probably sooner rather than later. 5-1/2 x 8-1/2 softcover 243 pages

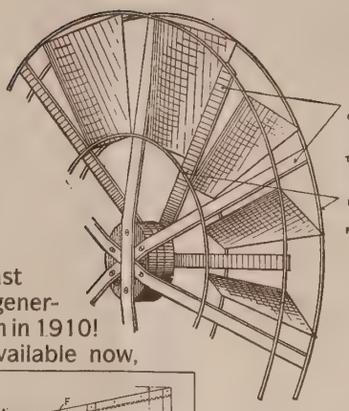
No. 3113 $10.95

Windmotors

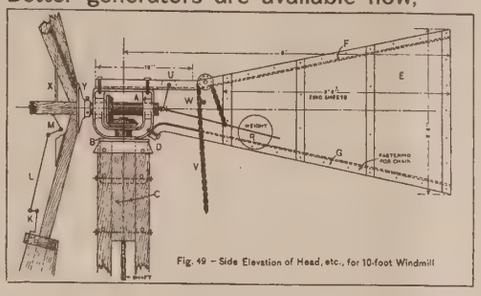
by F. E. Powell
reprinted by Lindsay Publications

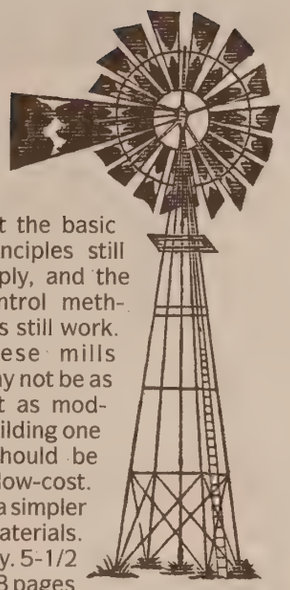


Learn about different types of turn-of-the-century windmills, some of them unusual. Build a model tower windmill similar to those in Holland. Build a real power-producing windmill with three foot diameter sails. Build a 6 foot diameter windmill capable of driving a 30 watt dynamo at 16 mph. You'll see many detailed drawings showing how the all-wood machine is built, and how metal gearing brings the power down to ground level.



Another chapter reveals a 10 foot diameter windmotor. The last chapter gives you tips on generating electricity—high tech in 1910! Better generators are available now,





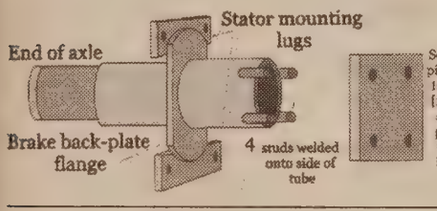
but the basic principles still apply, and the control methods still work. These mills may not be as hot as modern designs, but building one of these babies should be relatively easy and low-cost. Great designs from a simpler time with simpler materials. Low cost. Get a copy. 5-1/2 x 8-1/2 softcover 88 pages well-illustrated
No. 4279 $6.95

Brakedrum Windmill Plans

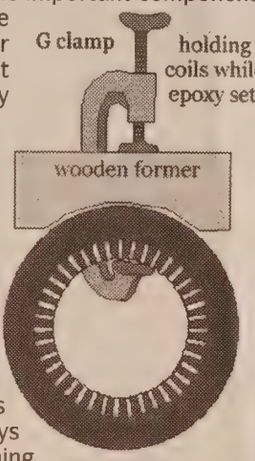
by Hugh Piggott

This small, high quality, jam-packed booklet is written by a professional Scottish windmill repairman. Here he shows you how to build the entire windmill, from carving a seven foot blade to converting an old electric motor into an alternator by winding coils and installing permanent magnets.

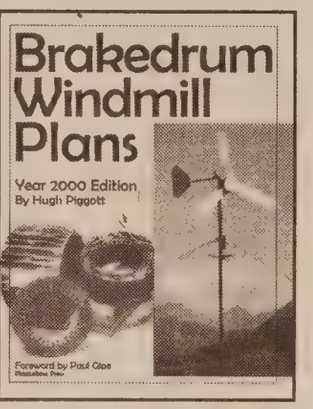
Piggott will tell you that this is not the most efficient windmill, but at 600 rpm the homemade alternator will kick out almost 400 watts at 42 volts. And that's not too bad considering that this machine is built on the cheap.


Stator mounting lugs
End of axle
Brake back-plate flange
4 studs welded onto side of tube
Square piece of 10mm (3/8") steel plate with holes

He'll show you the important components needed to get the windmill up in the air and get the tail set up to provide safety in high winds.



This is nicely done, but too brief. Each page and half section could be expanded into a chapter in itself. But I know from experience, that really good writers don't have much to teach us about this technology. The guys who DO have something to teach often can't write to save their life. So when someone comes along who knows how to build and repair windmills and puts something on paper, we had better consider ourselves very lucky and appreciate it.



Rare info. Unusual book. Expensive, but it delivers. I'm convinced you'll find it to be worth the price. Get one. 8 1/2 x 11 booklet 32 pages well illustrated
No. 2040 $15.95

HOW TO BUILD A

Solar Cell That Really Works

by Walt Noon

Walt Noon will show you how to quickly and inexpensively build a copper oxide photo cell. Admittedly, its overall efficiency doesn't come close to modern silicon cells, but neither does the cost. You can crank out cells for pennies. Connect many cells in parallel and series, and you can generate surprising amounts of power.

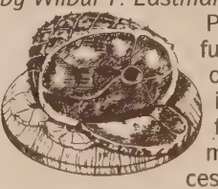
The process requires only simple tools. The chemicals, like all chemicals, can be dangerous if mishandled, but the worst is probably nitric acid which is used to thoroughly clean the copper.

He'll show you to make a working cell, test it, troubleshoot it if necessary, and even give you ideas on an experimental painted cell that he's working on. In addition, he'll give you schematics of test circuits, sample applications, and interesting projects that he's tried. You'll also get names and addresses of suppliers.

That author is not a pro, but he has safely built and used these solar cells. You can do the same. Get a copy of this! 5-1/2 x 8-1/2 booklet 22 pages
No. 819 $4.95

The Canning, Freezing, Curing & Smoking of Meat, Fish & Game

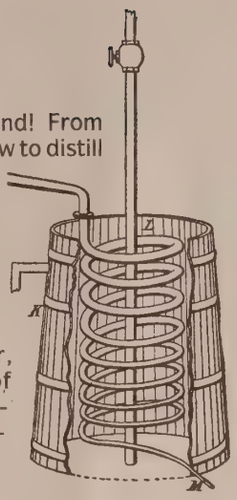
by Wilbur F. Eastman Jr



Preserve meat for the future. You get a mixture of plans, tips, how-to instructions, and recipes for preserving all types of meat with all types of processes. Learn about Canning, Freezing, Curing, How to Build a Smokehouse, Beef and Veal, Pork, Lamb, Poultry, Game, Fish, and Recipes. A classic book first released in 1975 and updated in 1989. Get a copy.
5-1/2 x 8-1/2 paperback 202 pages
No. 9061 $16.95

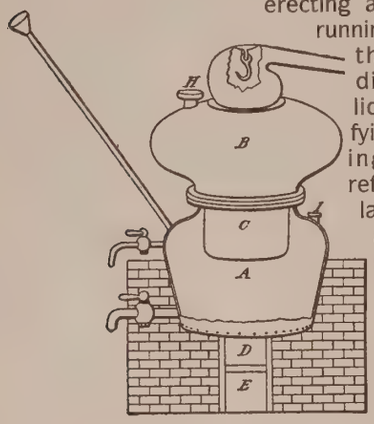
Practical Distiller

by Leonard Monzert
reprinted by Lindsay Publications



Make moonshine! Poison yourself! Go blind! From 1889 comes this little gem of a book showing how to distill *"Brandy, Gin, Rum, Whiskey, Arrac, Poteen, etc."*

You'll see the equipment you need to make booze. Included are discussions on the still and appurtenances, the farmer's still, directions for erecting a distillery, running a charge, the doubler, distillation of liquors, rectifying or leaching, alcohol refining, distillation of volatile oils, extracts, the water bath still, essences and liqueurs, blending and compounding and more.

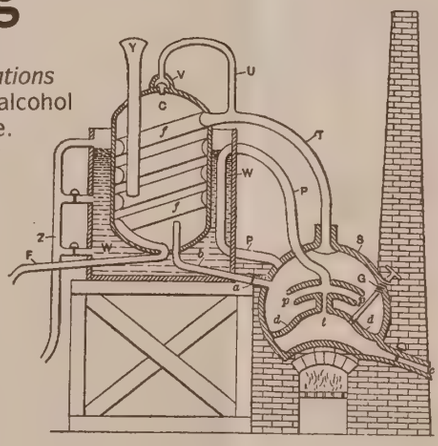


Making booze without a permit is illegal. If you intend to make booze, you're on your own. Do it right. Moonshine stills have been made with galvanized iron, old radiators, and other nasty metal that could poison you.

This is a book on hardware, not gourmet cooking. A great curiosity. Rare information. 5 1/2 x 8 1/2 softcover 156 pages
No. 4589 $8.95

Distillation of Alcohol and De-Naturing

by F. B. Wright
reprinted by Lindsay Publications



You can make industrial alcohol from anything fermentable. Here is one of the very best books you'll ever find on the nitty-gritty details of fermenting grain, fruit, potatoes, and more into a valuable fuel.

Chapters include alcohol, its forms and sources; preparation of mashes and fermentation; distilling apparatus; modern distilling apparatus; rectification; malting; alcohol from potatoes; alcohol from grain, corn, wheat, rice, and other cereals; alcohol from beets; alcohol from molasses and sugar cane; alcoholometry; distilling plants, their general arrangement and equipment; denatured alcohol, and denaturing formulae; denaturing regulations in the United States (now no doubt obsolete).

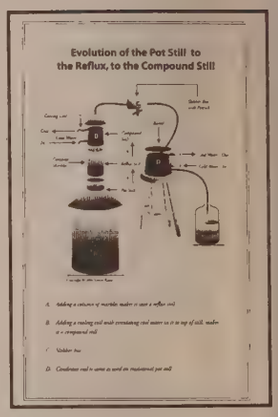
You get many, many illustrations of stills, and their equipment. You also get drawings of a potato steamer and crusher, a storage cellar for beets, a roll press for beets, a molasses fermenting house and more. You get recipes and the precise details on mashing.

This is fuel, and engines aren't too fussy about the booze they consume. If your goal is to make whiskey, you're on your own. It's against the law.

Great book! Originally copyrighted in 1907. Loaded with detailed how-to. Tremendous reference and source book for survivalists, farmers, Snuffy-Smith-types, chemistry buffs, and the curious. Good stuff. Get a copy. 5 1/2 x 8 1/2 softcover 271 pages
No. 21427 $14.95

The Alaskan Bootlegger's Bible

by Leon Kania

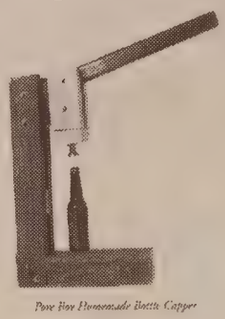


"Makin' beer, wine, liqueurs and moonshine whiskey, an old Alaskan tells how it's done"

"The author not only tells you how to make darned near any kind of beer, wine, liqueur and whiskey you can imagine, he also tells you how to make the equipment to do it with...

From recipes to stills [eight different designs], make your own cappers, kegs, scales and a malt factory out of an old freezer. It's all here!..."

The author, part of the lunatic-fringe (in other words, one of us) will show you how turn just about anything into booze to pass the long Alaskan winter nights, or far worse, a long weekend in the lower-48 with your mother-in-law. I'm not going to tell you the booze he creates is best, but you probably drink the cheapest rot-gut you can get your hands on, so this is good enough.


Pure Hot Homemade Bottle Capper

You get wall-to-wall how-to: plans and recipes for everything from creme-de-menthe and apple liqueur to steam beer, barley wine, and corn squeezins. Chapters include: the nake truth, wine for the masses, homebrew to gourmet beers, homemade poreboy equipment, whiskey makin', and flavoring and making liqueurs.

Material is covered quickly, but adequately. It's more than enough to make you a candidate for AA, or a target of the revenuers...

Excellent book. A bit pricey, but good. Nuts and bolts. Get a copy, get started and see how dramatically your outlook on life changes! 7x10 softcover 173 pages
No. 2062 $21.95

"After all the distilling and bootlegging lore, war stories, and caveman tales, you're probably beginning to feel like an anarchist or a 'Thunder Road' whiskey running rebel. That has not been my intent, nor is it a result, if you've read this. To the contrary, if you were a complete novice at page one, you should have progressed from the egg, to the flight feathers stage in the arts of wine making and beer brewing. You now know the principles and theory. Flap your wings and crow if you like. The next step is to throw your fuzzy little body off the limb of theory into the winds of practical application. Follow me and flap like Crazy! Caw! Caw!"

"I once demonstrated to two little neighbor boys that birch sap was sweet by dipping my finger in and tasting some fluid flowing from a fresh cut birch stump. They loved the demo, but declined the taste test because thy informed me Ralph, their big yellow dog, had just peed all over the stump..."

Wonders in Wood

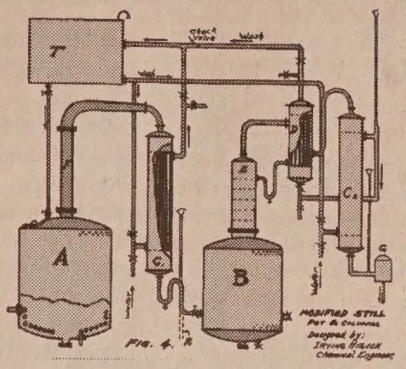
by Edwin Wyatt

Here you get a reprint of a 1946 collection of forty six different wooden puzzles most of which can be made from simple tools. Some of the puzzles are entitled marbles in a maze, triple dovetail puzzle, nest of toys, wooden pliers, cross-barred ball cage, the lie detector, counterfeit machine, and more. Some are simple "magic" tricks I remember as a kid.

You get mostly illustrations with enough text to explain what the illustrations can't show. If you work wood, this is something to have fun with. I won't require you to use wood. Make these toys out of brass, acrylic plastic, concrete, peanut butter, or spent uranium. Give them to your kids and grandkids. Sell them at a flea market. Think about the potential! Get a copy. 5-1/2 x 8-1/2 softcover 76 pages
No. 5045 $8.95

MANUFACTURE OF

Whiskey, Brandy and Cordials



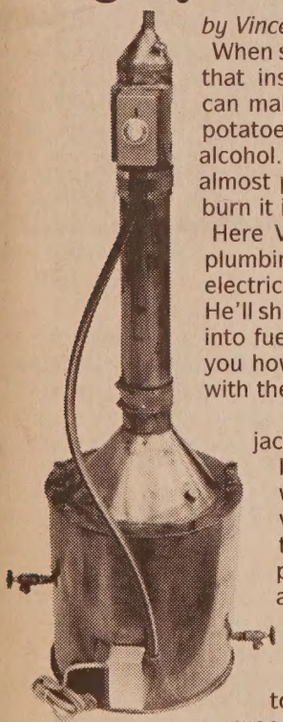
by Irving Hirsch
reprinted by Lindsay Publications

In 1937 the author, a chemical engineer, put together this industrial handbook to teach others how to produce hard stuff. Chapters include whiskey, treatment of grain, rye whiskey, distillation of liquors, distillery equipment and appliances, manufacture of brandy, of apple-jack, of pear brandy, of slivowitz, of fruit brandy, of rum, of gin, of miscellaneous liquors, of cordials, blending, maturing of spirits [very important], artificial maturing of spirits [trade secrets?], clarifying liquors, water, sugar and syrup, coloring and much more.

We're not talking about small moonshine stills or "white lightnin' " that tastes like liquid fire. This is good stuff. We're dealing with big stills and big processes the way the pro's did it and are probably still doing it. You get diagrams of many different types of stills, condensers, filters and so on. You get recipes for everything from gin to creme de cocoa. You get useful tips on blending scotch whiskeys, problems that occur if whiskey stays in bond too long, problems with sweating casks and much more.

Excellent, rare information. Order a copy today! 5 1/2 x 8 1/2 softcover 183 pages
No. 20935 $9.95

Secrets of Building An Gingery's Alcohol Still



by Vince Gingery

When shortages occur, an intelligent person knows that instead of trying to stockpile gasoline, you can make your own substitute out of sugar, corn, potatoes, or almost anything you can ferment into alcohol. This still will remove the water, creating almost pure alcohol, nearly 200 proof, so you can burn it in just about any type of engine.

Here Vince will teach you how to take common plumbing parts, copper sheeting, and standard electrical parts and build a 6 gallon capacity still. He'll show you how to malt, mash, and ferment corn into fuel and turn it into fuel. And Vince will show you how easy it is to get a license and do all this with the blessing of authorities.

The still heats the wash with a water jacket in which is immersed a 120 volt water heater element. Temperature is controlled with a continuous thermostat. Eventually vapors boil through the rectifying column to the condenser. If you carefully maintain the precise temperature, you'll get almost pure alcohol.

The fuel you produce is not going to be cheaper than gasoline unless you have a low cost source of fermentables and want to make a version you can fire with scrap wood or coal. But if you can't buy gasoline at any price, even alcohol at three or four dollars a gallon is a bargain. I suppose you could use the still to make whiskey and brandy, but it's illegal.

Great book! Be independent. Thumb your nose at the corner gas station. Build a still, and make fuel. Order a copy. 8 1/2 x 11 softcover 76 pages
No. 6060 $12.95

A PRACTICAL TREATISE ON THE RAW MATERIALS AND THE

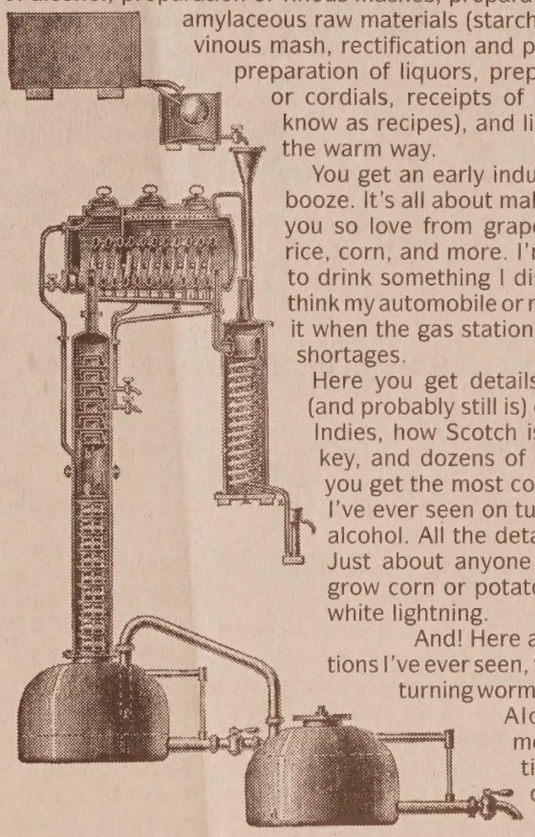
Distillation and Rectification of Alcohol

by William T Brannt
reprinted by Lindsay Publications

And the title continues: "and the preparation of alcoholic liquors, liqueurs, cordials, and bitters." Chiefly edited from the German of Stammer, Elsner & Schubert. 1885.

This is about making booze. It's not the only alcohol cookbook in our catalog, but this has something to offer the others don't.

Chapters include alcohol, alcoholometry, raw materials, formation of alcohol, preparation of vinous mashes, preparation of alcohol from amylaceous raw materials (starch), distillation of the vinous mash, rectification and purification of spirit, preparation of liquors, preparation of liqueurs or cordials, receipts of liqueurs (what you know as recipes), and liqueurs prepared in the warm way.



You get an early industrial handbook on booze. It's all about making that nasty stuff you so love from grapes, malt, potatoes, rice, corn, and more. I'm not sure I'd want to drink something I distilled myself, but I think my automobile or motorbike might like it when the gas stations are closed due to shortages.

Here you get details on how rum was (and probably still is) distilled in the West Indies, how Scotch is made, corn whiskey, and dozens of other potions. And you get the most complete instructions I've ever seen on turning potatoes into alcohol. All the details, tricks and tips. Just about anyone should be able to grow corn or potatoes and turn it into white lightning.

And! Here are the only instructions I've ever seen, five pages in fact, on turning wormwood into absinthe. Along with recommended still modifications. Never heard of it? Well, absinthe is so nasty that it's illegal almost everywhere, although I hear it is still bootlegged out of Switzerland. This liquor was consumed a hundred years ago in Europe (and at least one saloon in New Orleans) in astonishing quantities. The 160 proof liquor was drizzled through a slotted spoon holding a sugar cube into a glass with a little water and turned an emerald green. In addition to the alcohol, the drink contained a chemical related to the active ingredient in mirajuana. Parisian artists, among others, got REALLY messed up on the stuff. It caused so much damage that it was outlawed, and today the drink is associated with decadence. So if you really want to risk your life and limb, here are the secrets to making the stuff.

If nothing else, turn your motorscooter into an alcoholic. Or make gin, vodka, or blackberry brandy for your self-righteous Aunt Abstemious. (She'll never know what hit her!).

Need to make a few bucks on the side? Have you considered selling illegal whiskey? The Feds will get you. Don't say I didn't warn you.

Great book on the secrets of making ethanol. Wood engravings of stills and other hardware. One of the best I've seen. Scarce book. You'll pay many times more to get an original copy. Get this reprint for your library. 5-1/2 x 8-1/2 softcover 330 pages
No. 23179 $17.95

INDEX TO GREAT BOOKS WORTH HAVING!

(A good book will teach you more in 30 minutes than 30 years of television watching ever could...)

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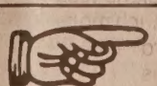
ORDER ON LINE 

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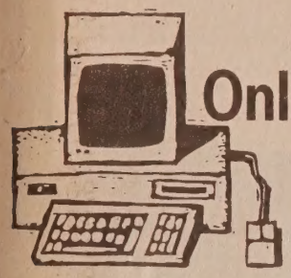

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